IEI Technology Corp.

MODEL:

AFL-9652 Series

All-in-one Flat Panel PC with Intel® Core™2 Duo/Celeron® M, Touch Screen, 802.11 a/b/g/n Wi-Fi, Bluetooth, Two RJ-45 GbE, IP 64 Protection and iAMT Support

User Manual

Rev. 1.02 – 2 October, 2009

RoHS Lead Free

Revision

Date	Version	Changes
2 October, 2009	1.02	Added back cover screw torque warning
7 May, 2009	1.01	Modified jumper setting information
September, 2008	1.00	Initial release

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Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the AFL-9652 series or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the AFL-9652 series. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the AFL-9652 series. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the AFL-9652 series. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the AFL-9652 series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the AFL-9652 series package.

- 1 x Power cord
- 1 x Power adapter
- 1 x User Manual and driver CD
- 1 x Touch screen pen
- 1 x eSATA cable
- 1 x Screw kit
- 1 x Panel mounting kit (optional)
- 1 x Wall mounting kit (optional)
- 1 x Rack mounting kit (optional)
- 1 x 128 MB CompactFlash® card with Windows CE 5.0 pre-installed (optional)
- 1 x 128 MB CompactFlash® card with Windows Embedded CE 6.0 pre-installed (optional)
- 1 x 1 GB CompactFlash® card with Windows XPE pre-installed (optional)

Images of the above items are shown in **Chapter 3**.

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Chapter

1

Introduction

1.1 General Overview

Figure 1-1: AFOLUX 9652 Series Touch Panel PC

The AFL-15C-9652, AFL-17C-9652 and AFL-19C-9652 (AFL-9652 series) are Intel® Core™2 Duo or Intel® Celeron® M powered flat panel PCs with a rich variety of functions and peripherals. Both AFL-9652 models are designed for easy and simplified integration in to multiple applications.

An Intel® GME965 graphics memory controller hub (GMCH) coupled with an Intel® ICH8M input/output controller hub ensures optimal memory, graphics, and peripheral I/O support. The system comes with 1.0 GB or 2.0 GB of preinstalled DDR2 SDRAM and supports a maximum of 4.0 GB of DDR2 SDRAM ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Two serial ports and four external USB 2.0 ports ensure simplified connectivity to a variety of external peripheral devices. A VGA connector enables connectivity to other monitors. 802.11 a/b/g/n Wi-Fi capabilities and two RJ-45 Ethernet connectors ensure smooth connection of the system to an external LAN.

1.1.1 Model Variations

The models of AFL-9652 series are listed in **Table 1-1**.

AFL-15C-9652	CPU	LCD	Brightness	Memory	Wireless
-CM550/WT-R/1GB	2.0 GHz Intel® Celeron® M (550)	15”	350 cd/m^2	1 GB DDR2	Yes
-T7500/WT-R/2GB	2.2 GHz Intel® Core™2 Duo (T7500)	15”	350 cd/m^2	2 GB DDR2	Yes
AFL-17C-9652	**CPU**	**LCD**	**Brightness**	**Memory**	**Wireless**
-CM550/WT-R/1GB	2.0 GHz Intel® Celeron® M (550)	17”	300 cd/m^2	1 GB DDR2	Yes
-T7500/WT-R/2GB	2.2 GHz Intel® Core™2 Duo (T7500)	17”	300 cd/m^2	2 GB DDR2	Yes
AFL-19C-9652	**CPU**	**LCD**	**Brightness**	**Memory**	**Wireless**
-CM550/WT-R/1GB	2.0 GHz Intel® Celeron® M (550)	19”	300 cd/m^2	1 GB DDR2	Yes
-T7500/WT-R/2GB	2.2 GHz Intel® Core™2 Duo (T7500)	19”	300 cd/m^2	2 GB DDR2	Yes

Table 1-1: Model Variations

1.1.2 Standard Features

Some of the standard features of the AFL-9652 series flat panel PC include:

- Rugged mechanism design with ABS/PC case
- IP 64 dustproof and waterproof front panel
- 1.0 GB / 2.0 GB DDR2 memory
- 802.11 a/b/g/n Wireless LAN
- eSATA port

- Dual 10/100/1000 Mbps Ethernet support
- Bluetooth connectivity supported
- Optional GPRS and HSDPA interfaces supported
- Supports Intel® Active Management Technology (AMT) 2.5
- Simplified installation process
- RoHS compliance

1.2 External Overview

The AFL-9652 series is a flat panel PC. The monitor and all internal components are enclosed in an aluminum chassis. An ABS/PC plastic cover surrounds the aluminum chassis. VESA compliant screw holes in the rear panel allow the AFOLUX to be attached to any VESA compliant mounting. The access panel at the bottom of the AFOLUX gives access to a VGA port, four USB ports, an eSATA port, two Ethernet ports, a RS-232/422/485 port, a RS-232 port, an audio jack, power input and power switch.

1.2.1 Front Panel

The front side of the AFL-9652 series is a flat panel TFT LCD screen surrounded by an ABS/PC plastic frame.

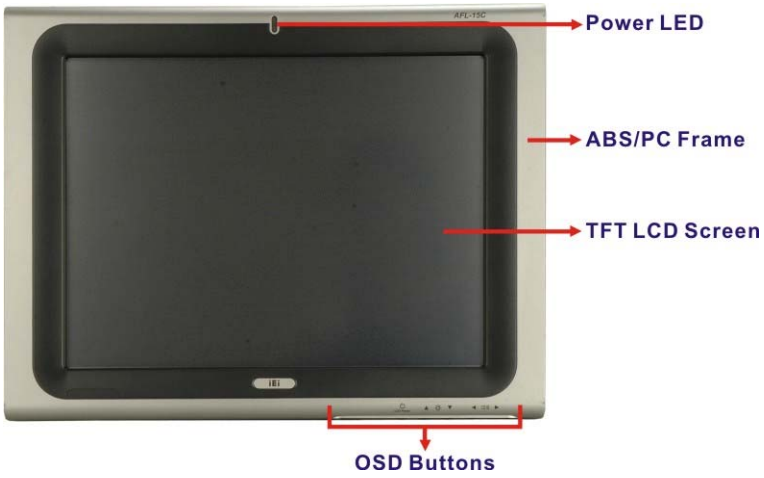


Figure 1-2: Front View

1.2.2 Rear Panel

The rear panel provides access to retention screw holes that support the wall mounting. Refer to **Figure 1-3**.

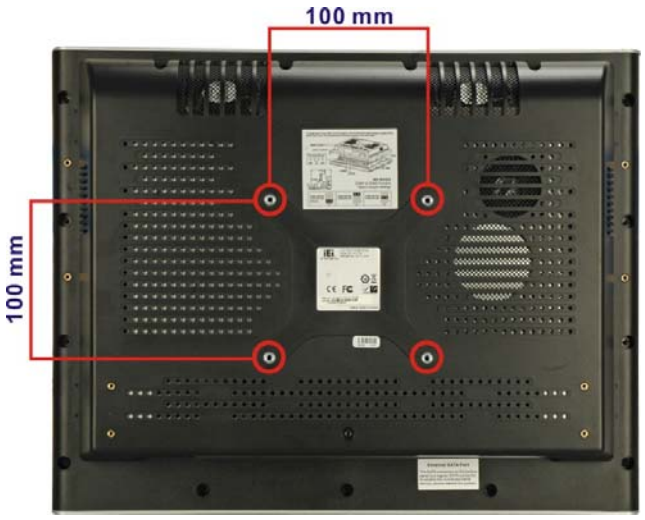


Figure 1-3: AFL-9652 Rear View

1.2.3 Bottom Panel

The bottom panel of the AFL-9652 series has the following I/O interfaces (**Figure 1-4**):

- 1 x 12 V DC power input connector
- 1 x Audio jack
- 1 x AT/ATX switch
- 1 x eSATA port
- 1 x Power switch
- 1 x Reset button
- 1 x RS-232 serial port connector
- 1 x RS-232/422/485 serial port connector
- 2 x RJ-45 10/100/1000Mbps Ethernet connectors
- 4 x USB 2.0 connectors
- 1 x VGA port

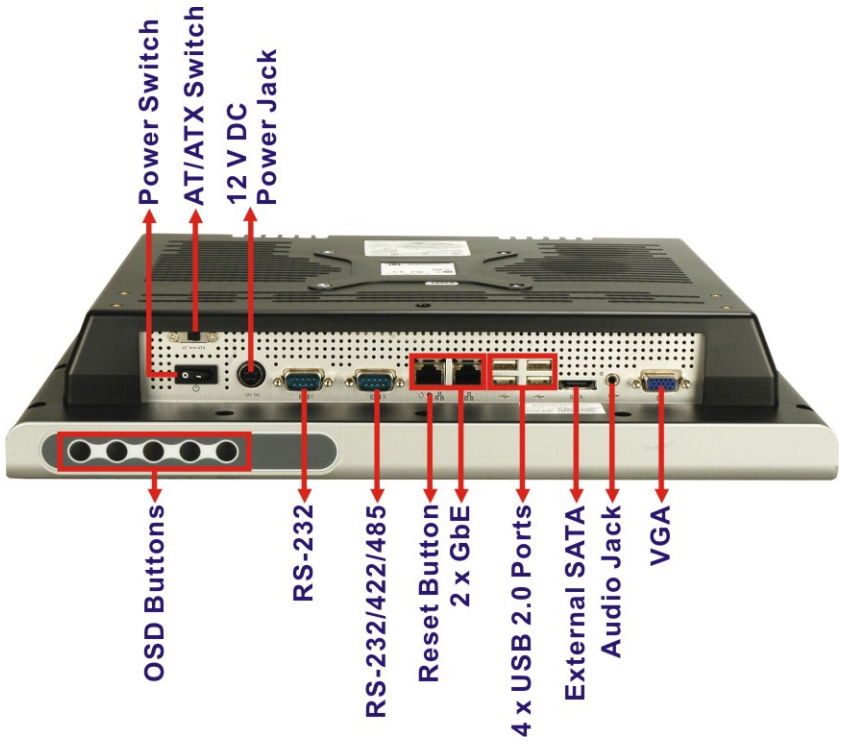


Figure 1-4: AFL-9652 Bottom View

1.3 Internal Overview

The AFL-9652 includes the following parts inside the aluminum internal cover.

- 1.0 GB DDR2 SO-DIMM
- Antennas
- Backlight inverter
- Bluetooth module
- CompactFlash® disk (optional)
- GPRS module (optional)
- Hard drive (optional)
- Two speakers
- Wireless LAN card

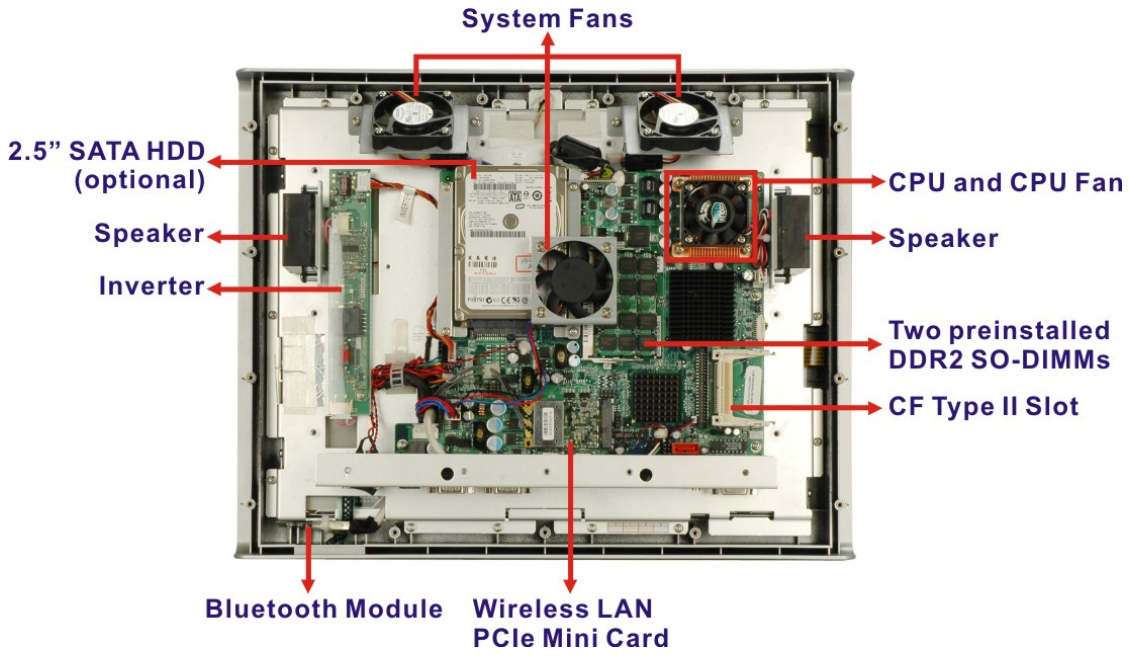


Figure 1-5: Internal Overview

1.4 Specifications

1.4.1 Preinstalled Hardware Components

The AFL-9652 series flat panel PC has the following preinstalled components:

- 1 x Motherboard
- 1 x TFT LCD screen
- 1 x Touch screen panel
- 1 x Inverter
- 1 x Wireless LAN module
- 2 x DDR2 memory modules
- 1 x Bluetooth module
- 1 x AT/ATX switch
- 2 x Speakers

The technical specifications for the system, and some of these components, are shown in the sections below.

1.4.2 System Specifications

The technical specifications for the AFL-9652 series systems are listed in **Table 1-2.**

SPECIFICATION	15 inch	17 inch	19 inch
LCD Size	15″	17″	19″
Max Resolution	1024 x 768	1280 x 1024	1280 x 1024
Brightness (cd/m^2)	350	300	300
Contrast Ratio	700:1	800:1	1000:1
LCD Color	262K	16.7M	16.7M
Pixel Pitch (mm)	0.297 (H) x 0.297 (V)	0.264 (H) x 0.264 (V)	0.294 (H) x 0.294 (V)
Viewing Angle (H-V)	140 / 125	160 / 160	178 / 178
Backlight MTBF	50,000 hours		
SBC Model	AFLMB-9652		
CPU	2.0 GHz Intel® Celeron M 550 CPU or 2.20 GHz Intel® Core™2 Duo T7500 CPU		
Memory	One or two 200-pin 1.0 GB dual-channel DDR2 SO-DIMM		
I/O Ports	1 x eSATA port 2 x RS-232 1 x RS-232/422/485 2 x RJ-45 4 x USB 2.0 1 x Power switch 1 x Reset button 1 x VGA port 1 x Audio		
Storage	1 x 2.5″ SATA 1 x CompactFlash® Type I/II		
Speakers	2 x 3 W AMP		
Expansion	1 x PCIe Mini Wireless LAN Module		
Construction Material	ABS + PC Plastic front frame		
LED Functions	1 x Power on/off LED		
Mounting	VESA MIS-D mount for panel, wall, rack, stand and arm mounting		
Front Panel Color	Silver and black		

SPECIFICATION	15 inch	17 inch	19 inch
Dimensions (W x H x D) (mm)	393 x 308 x 74	428 x 350 x 76	470 x 383 x 78
Operating Temperature	0°C ~ 40°C (0°C ~ 45°C with CompactFlash® or SSD HDD)		
Storage Temperature	-20°C ~ 60°C		
Net Weight	5.8 kg	5.8 kg	6.2 kg
IP Level	IP 64		
EMC	CE, FCC, CCC		
Safety	UL, CB		
Touch Screen	Resistive Type 5 Wire (touch controller IC is on board)		
Power Input	12 V DC		
Power Consumption (Intel® T7500, 2 GB memory, 80 GB HDD)	80 W	86 W	88 W

Table 1-2: AFL-9652 series System Specifications

Chapter

2

Specifications

2.1 Dimensions

2.1.1 AFL-15C-9652 Dimensions

The dimensions of the AFL-15C-9652 flat panel PC are shown in **Figure 2-1** below.

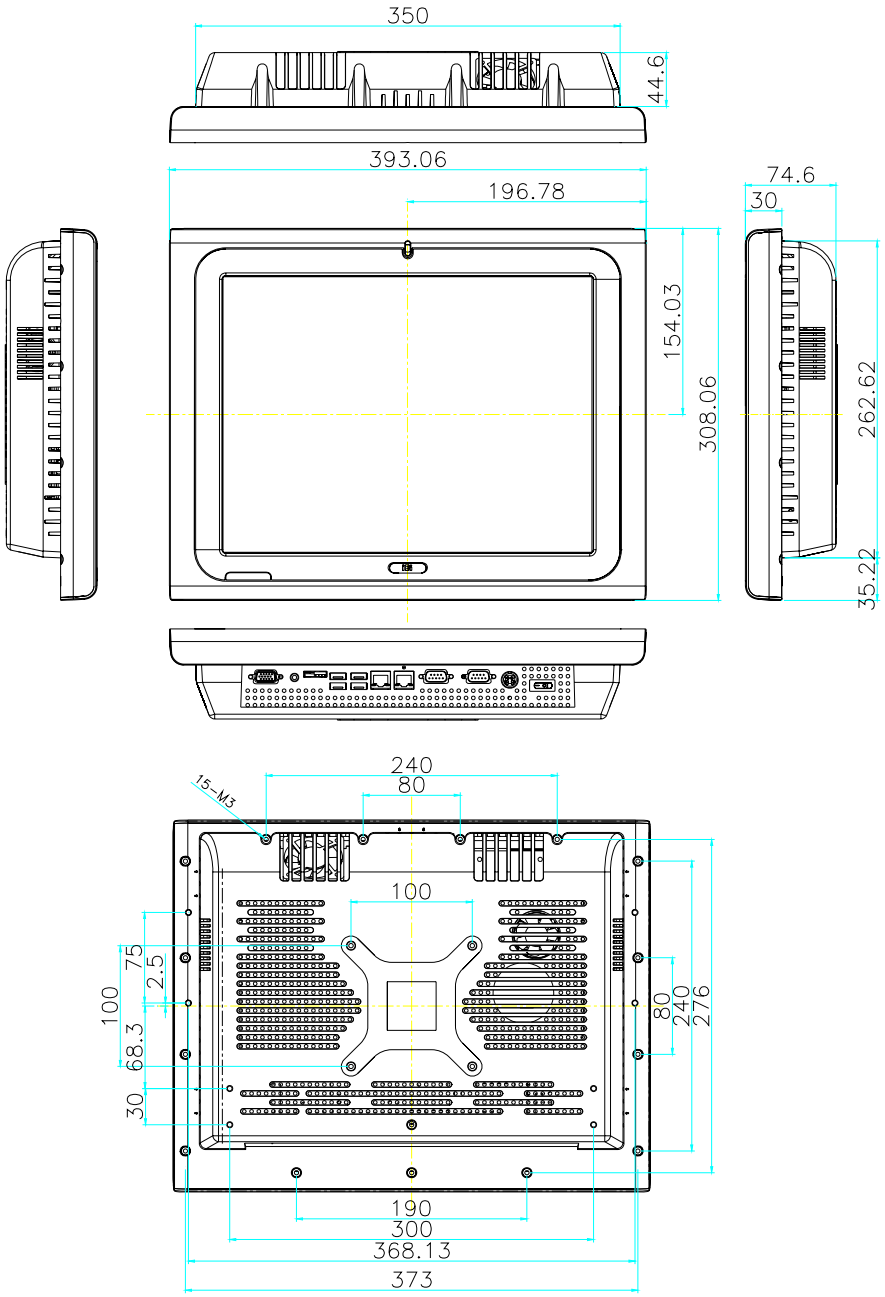


Figure 2-1: AFL-15C-9652 Dimensions (units in mm)

2.1.2 AFL-17C-9652 Dimensions

The dimensions of the AFL-17C-9652 flat panel PC are shown in **Figure 2-2** below.

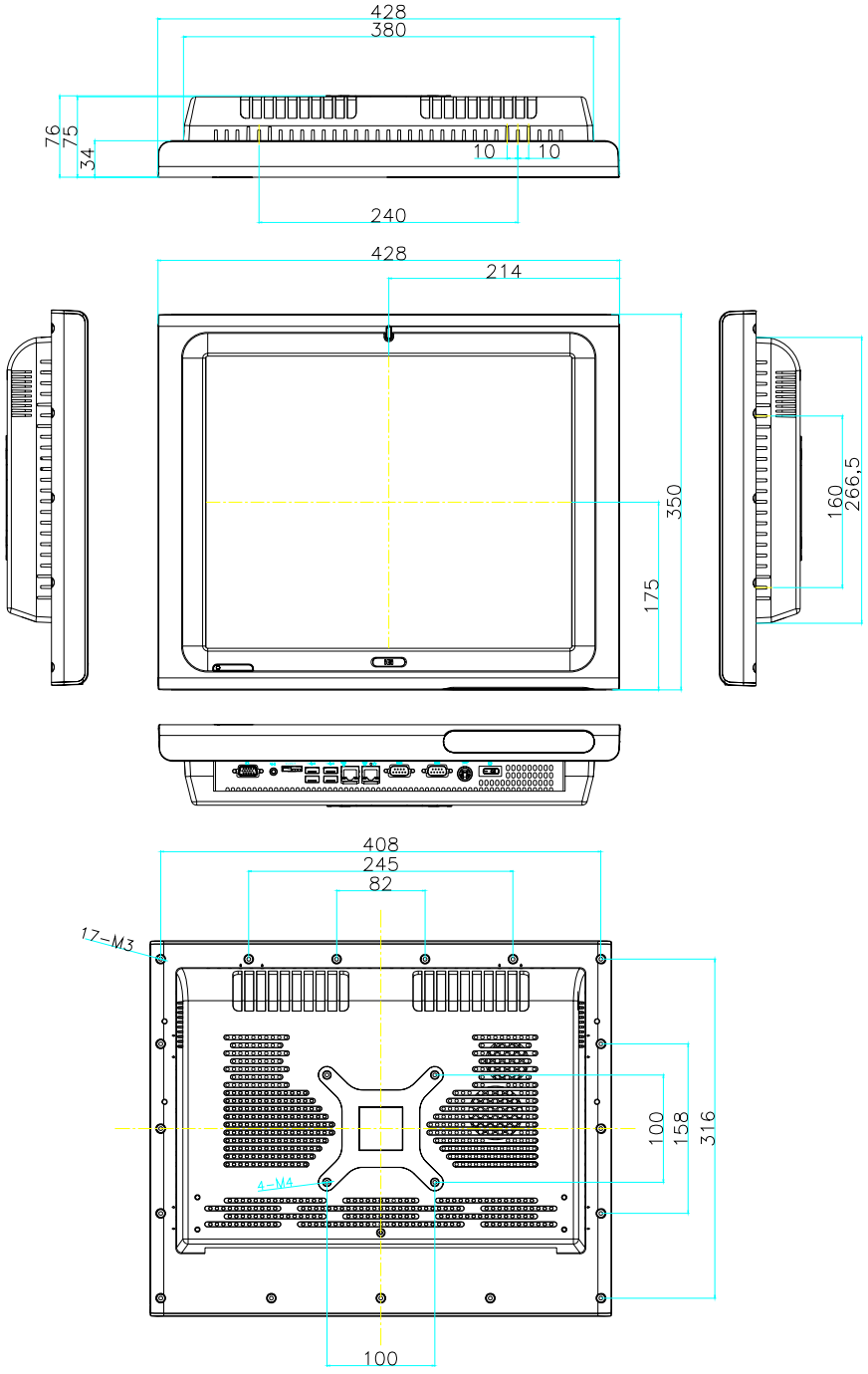


Figure 2-2: AFL-17C-9652 Dimensions (units in mm)

2.1.3 AFL-19C-9652 Dimensions

The dimensions of the AFL-19C-9652 flat panel PC are shown in **Figure 2-2** below.

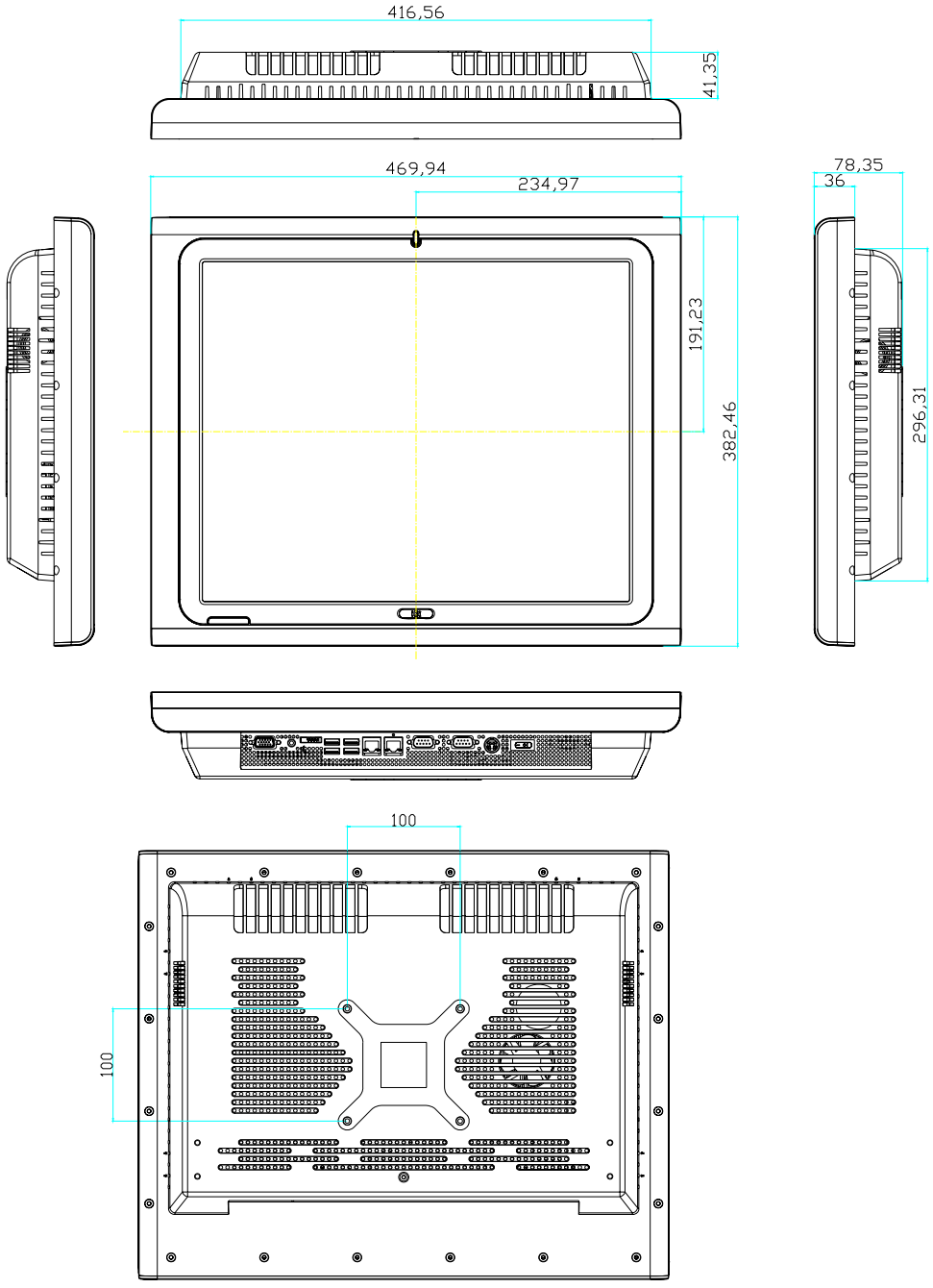


Figure 2-3: AFL-19C-9652 Dimensions (units in mm)

2.2 Intel® Desk-Top Processor Support

A T7500 Intel® Socket P Core™2 Duo or a 550 Intel® Socket P Celeron® M processor is installed in the system. TheT7500 Intel® Core™2 Duo processor has a CPU speed of 2.2 GHz, a 800 MHz front side bus (FSB) and a 4.0 MB L2 cache. The 550 Intel® Celeron® M processor has a CPU speed of 2.0 GHz, a 533 MHz front side bus (FSB) and a 1.0 MB L2 cache. The processor is shown in Figure 2-4 below.

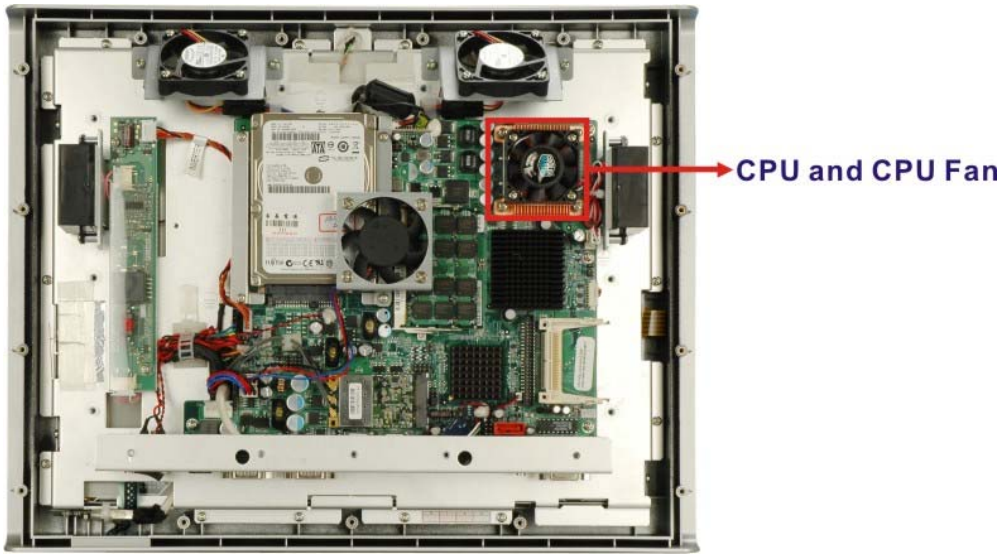


Figure 2-4: CPU and CPU Fan

T7500 Intel® Socket P Core™2 Duo desktop processor supports the following Intel® features:

- Dual Core
- Intel® Wide Dynamic Execution
- Intel® Intelligent Power Capability
- Intel® Smart Memory Access
- Intel® Advanced Smart Cache

2.3 Motherboard Components

The following sections describe some of the features on the motherboard.

2.3.1 Memory Support

2.3.1.1 Installed Memory

Two 200-pin 1.0 GB or one 1.0 GB DDR2 SDRAM SO-DIMM are installed in the AFL-9652 and controlled by the Intel® GME965 GMCH installed on the internal motherboard.

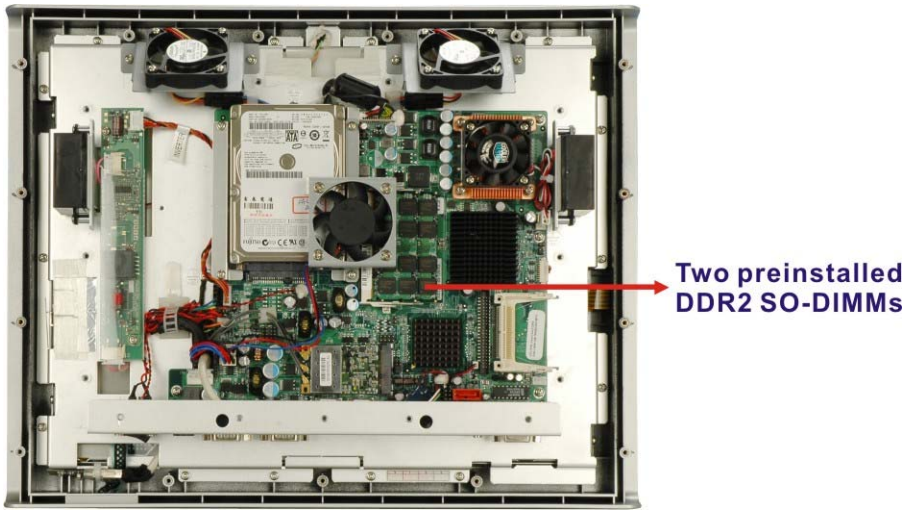


Figure 2-5: Memory Module and Memory Socket

2.3.1.2 Additional Memory

The Intel® GME965 is capable of supporting two 200-pin 2.0 GB (max.) 400 MHz DDR2 SDRAM SO-DIMM (system max. 4.0 GB). If additional memory is required, please contact an IEI sales representative and discuss the necessary system requirement.

2.3.2 Storage Capacity

The AFL-9652 comes with a SATA hard disk drive bay for a 2.5” HDD. The system can also support an easily installed CompactFlash® Type II (CF Type II) memory disk.

2.4 External Peripheral Interface Connectors

The following section describes the external peripheral interface connectors on the rear panel of the subsystem.

2.4.1 Serial Port Connectors

The AFL-9652 has two serial ports. The COM1 serial port is a RS-232 only port. The COM3 serial port can be configured as a RS-232, RS-422 or an RS-485 serial port. Pin 9 on all ports can be set as the normal ring (RI) signal or can be designated as a 5 V or 12 V power supply. The two serial ports (COM1 and COM3) are interfaced to the ITE IT8712 super IO, through the low pin count (LPC) bus to the ICH8M Southbridge.

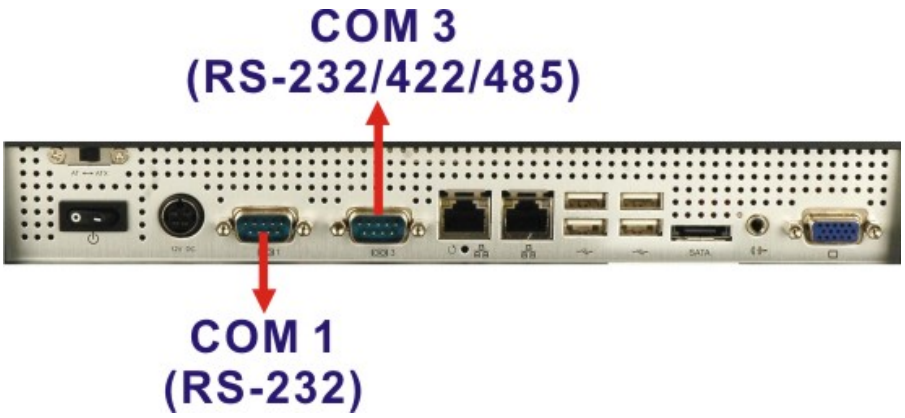


Figure 2-6: COM Ports

There is one additional on-board serial port (COM2) which is connected to the touch screen panel.

2.4.2 LAN Connectivity

The AFL-9652 series has two GbE connectors on the bottom panel. One of the external RJ-45 Ethernet LAN connectors is interfaced to an Intel® 82566MM Gigabit LAN connect device from the ICH8M Southbridge. The other RJ-45 Ethernet LAN connector is interfaced directly to an Intel® 82573L PCIe GbE controller.

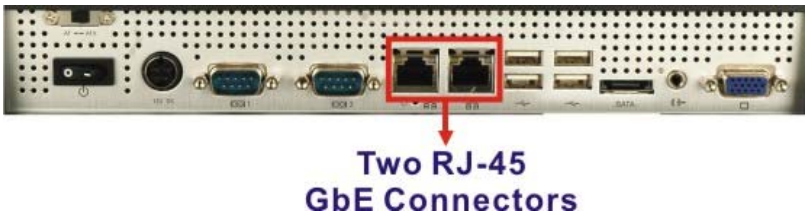


Figure 2-7: RJ-45 Ethernet Connectors

2.4.3 External USB Connectors

There are four USB 2.0 connectors on the bottom panel of the AFL-9652. All the USB 2.0 connectors are interfaced directly to the USB controllers on the ICH8M Southbridge. The USB connectors are all fully compliant with USB specification Revision 2.0 and USB specification Revision 1.1 and can be interfaced to both USB 1.1 and USB 2.0 compliant devices.

Figure 2-8: External USB Ports

2.4.4 eSATA Connectivity

An external SATA connector on the bottom panel interfaces to ICH8M Southbridge on the motherboard that connects through the serial ATA bus. The external SATA connector supports one external SATA drive.

Figure 2-9: eSATA Connector

2.5 AFOLUX AFL-9652 Front Side

2.5.1 Monitor

A LCD screen is installed on the front of the AFL-9652 series and connected to the LVDS connector on the motherboard. The screen is shown in **Figure 2-10** below.

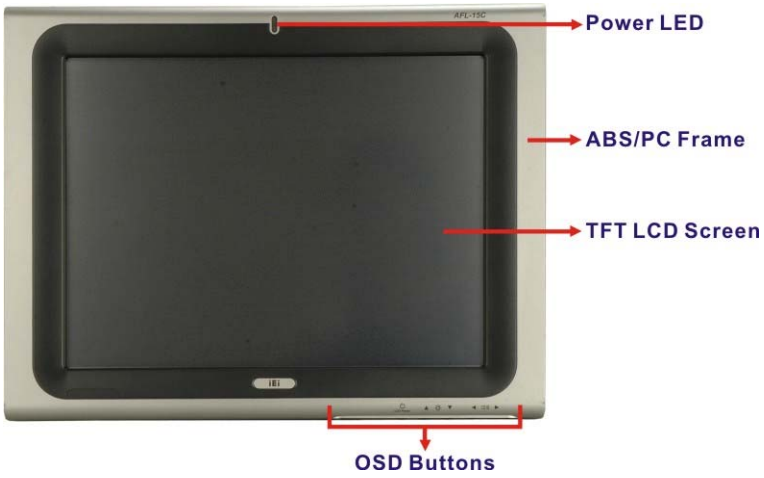


Figure 2-10: LCD Screen

2.5.2 Touch-Screen Module

A controller for the 5-wire resistive touch screen is installed on the motherboard. The sensitive touch screen is accurate, reliable and durable.

2.6 Graphics

2.6.1 Intel® GME965 Integrated Graphics Media Accelerator 950

The Intel® GME965 has the mobile Intel® Graphics Media Accelerator (GMA) X3100 integrated into the chipset and interfaced to the VGA connector. The Intel® GMA X3100, with an integrated 300 MHz RAMDAC and hot plug CRT support, supports analog CRT monitors up to QXGA.

Figure 2-11: VGA Connector

2.6.2 Dual-Display

The system supports dual display capabilities. An additional monitor can be connected to the AFL-9652 series through the VGA connector described above.

2.7 Audio

2.7.1 High Definition Audio Controller

The integrated High Definition Audio compliant audio controller on the Intel® ICH8M Southbridge is integrated to a RealTek ALC262 audio codec. The RealTek ALC262 is connected to the external audio jack, which is then connected to compliant audio devices. The RealTek ALC262 is a four-channel High Definition Audio codec with two 24-bit stereo DACs and three 20-bit stereo ADCs. The codec and the audio connector are shown in **Figure 2-12**.

Figure 2-12: Audio Jack

2.7.2 Stereo Speakers

Two stereo speakers on the both sides of the AFL-9652 are interfaced to the system through a Philips TDA1517P integrated 3 W dual output amplifier.

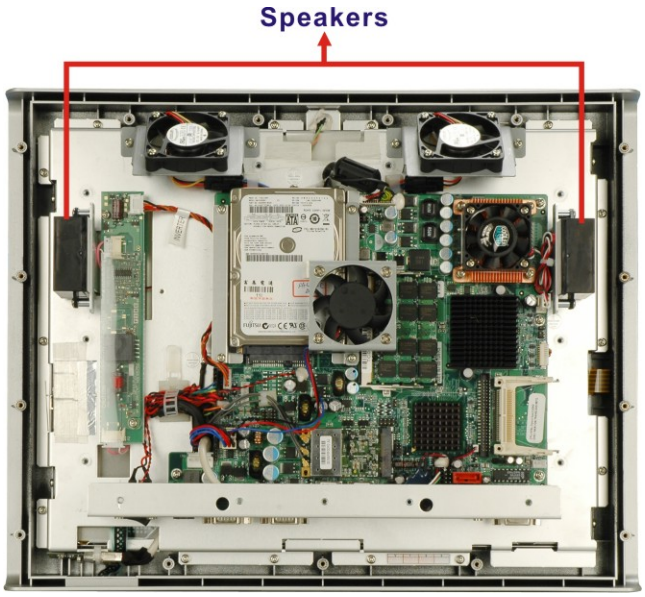


Figure 2-13: Stereo Speakers

2.8 System Power

2.8.1 Power Mode

The system can be run in the AT power mode or the ATX power mode. Both these power modes are described below.

2.8.1.1 ATX Power Mode (Default)

With the ATX mode selected, the AFOLUX AFL-9652 panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

Figure 2-14: Power Connector

2.8.1.2 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFOLUX AFL-9652 panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

2.8.2 Power Adapter

The system is shipped with a 90 V to 264 V AC power adapter that has a maximum power output of 96 W. The power adapter has a 12 V DC output connectors.

2.8.3 Power Connector

The power connector is located on the bottom panel interface panel. A 12 V DC input connector is a standard 4-pin power connector shown in **Figure 2-15** below.

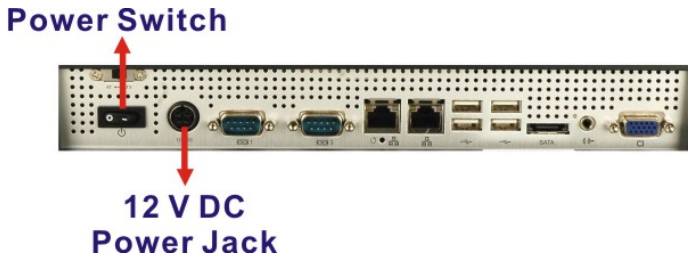


Figure 2-15: Power Connector

2.9 Wireless Connections

The following section describes the wireless modules on the circuit.

2.9.1 USB Bluetooth Module

An integrated Bluetooth module is connected to ICH8M chipset through the USB bus. The AFL-9652 Bluetooth module enables wireless communications between the AFL-9652 and various peripheral devices through a Bluetooth network. The peripheral devices may include:

- Headsets
- Barcode readers
- PDA
- Printers
- Cell phones
- Keyboard and mouse

The Bluetooth module is shown in **Figure 2-16** below and the technical specifications of the Bluetooth module are listed in the Appendix.

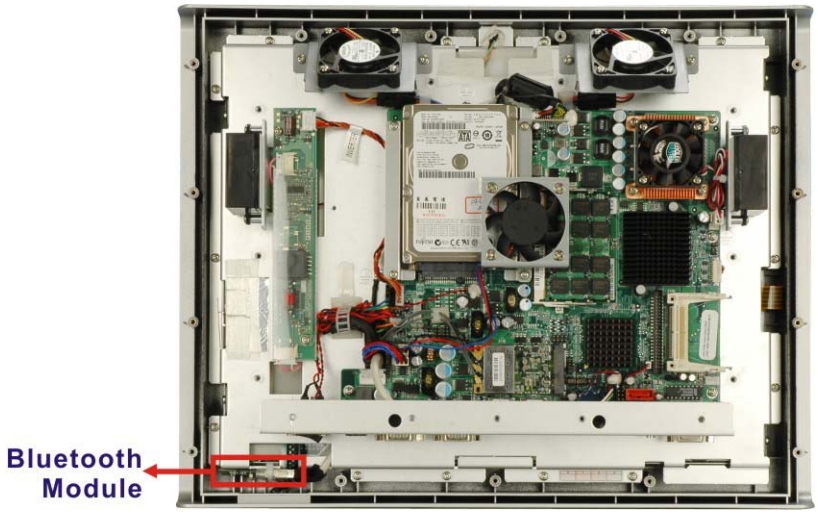


Figure 2-16: Bluetooth Module

2.9.2 Wireless Ethernet

An integrated 802.11 a/b/g/n wireless LAN module and PIFA antenna on the AFL-9652 series ensure an uninterrupted wireless connection. PIFA antennas can receive high-quality, uniform signals in any location from all directions without any signal degradation or impedance and are the most efficient antennas on the market.

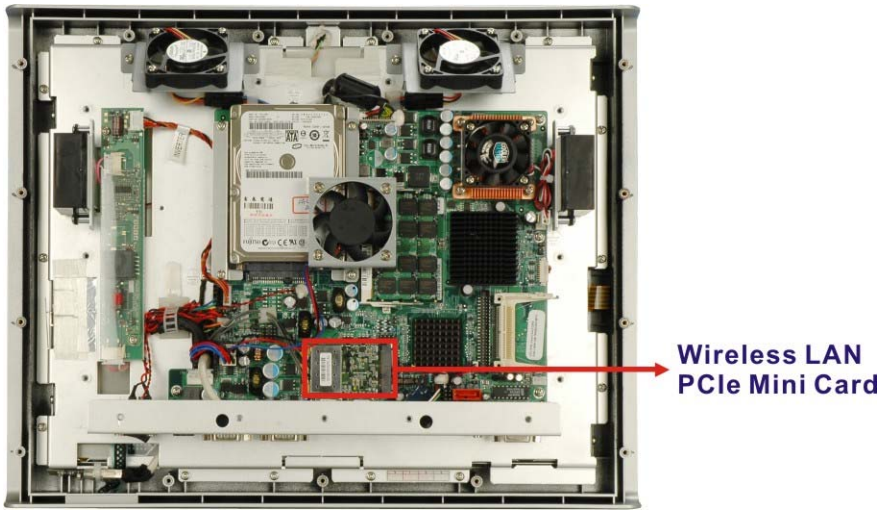


Figure 2-17: Wireless LAN Module

2.10 Optional Modules

The following sections describe the optional module available to the user.

2.10.1 HSDPA Module (Optional)

An optional HSDPA module can be integrated into the AFL-9652 and provide the 3.5G mobile connectivity. The HSDPA module is one of the OEM options for the AFL-9652 series. The technical specifications of the HSDPA module are listed in the Appendix.

2.10.2 GPRS Module (Optional)

An optional GPRS module can be integrated into the AFL-9652 and provide the 2.5G mobile connectivity. The GPRS module is one of the OEM options for the AFL-9652 series. The technical specifications of the GPRS module are listed in the Appendix.

Chapter

3

Unpacking

3.1 Unpacking

To unpack the flat panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the flat panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the flat panel PC.

Step 7: Make sure all the components listed in the packing list are present.

3.1.1 Packing List

The AFL-9652 flat panel PC is shipped with the following components:

Quantity	Item	Image
Standard		
1	AFL-9652 series panel PC	
1	Power adapter	
1	Power cord	
1	User manual CD and driver CD	
1	Touch pen	
1	eSATA cable	
1	Screw kit	
Optional		
Wall mounting kit		
Panel mounting kit		

Quantity	Item	Image
	128 MB CompactFlash® card with Windows CE 5.0 pre-installed	
	128 MB CompactFlash® card with Windows CE 6.0 pre-installed	
	1 GB CompactFlash® card with Windows XPE pre-installed	

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

Chapter

4

Installation

4.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the AFL-9652 may result in permanent damage to the AFL-9652 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-9652. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-9652 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***:- Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: - When configuring the AFL-9652, place it on an antic-static pad. This reduces the possibility of ESD damaging the AFL-9652.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

4.2 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.
- **Mounting**: The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are

assisting with the procedure.

- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

4.3 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- Backlight inverter
- TFT LCD screen
- DDR2 memory modules
- Resistive type touch screen panel
- Wireless LAN module
- Bluetooth module
- AT/ATX power switch

Preinstalled OEM customizations may include the following.

- Different DDR2 memory modules
- 2.5” SATA hard disk drive
- GPRS / HSDPA module

Installation of some of the components is described in **the following sections.**

4.4 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the flat panel PC

Step 2: Install the CompactFlash® card (optional)

Step 3: Install the GPRS (optional)

Step 4: Install the hard drive (optional)

Step 5: Mount the flat panel PC

Step 6: Connect peripheral devices

Step 7: Configure the system

4.5 CF Card Installation

The AFL-9652 series has one CompactFlash® Type I/II slot inside the left side panel. To install the CF card, follow the instructions below.

Step 1: Remove the retention screws (**Figure 4-1**) and lift the cover off the flat panel PC.

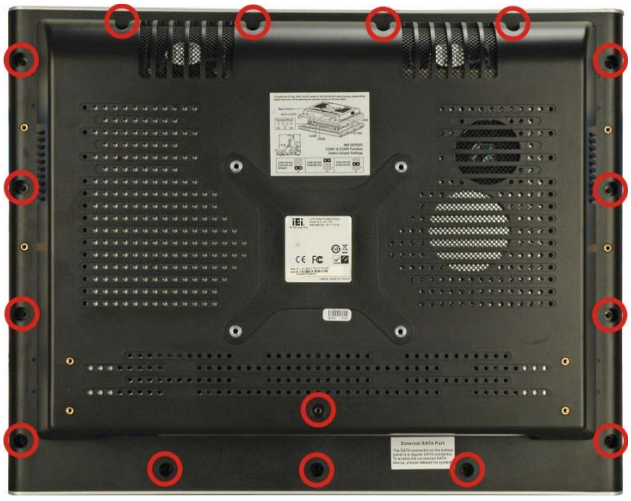


Figure 4-1: Back Cover Retention Screws

Step 2: Locate the CF slot. Align the CF card with the guides on the slot (Figure 4-2).

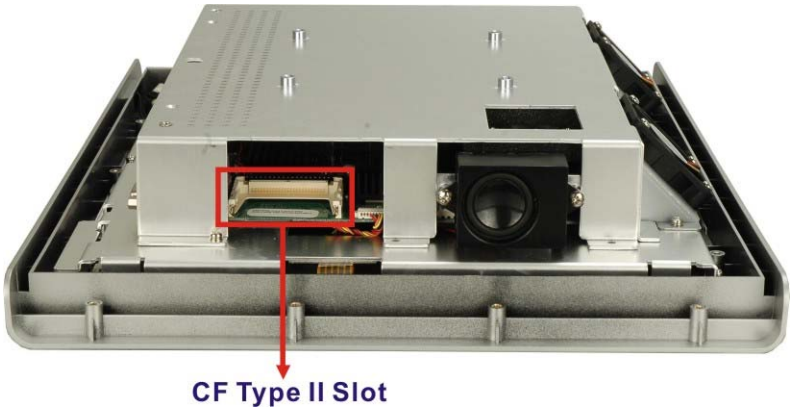


Figure 4-2: CF Card Location

Step 3: Insert a CF card into the slot (**Figure 4-3**).

Figure 4-3: CF Card Installation

Step 4: Replace the plastic back cover and fasten the retention screws.

WARNING:

Over-tightening back cover screws will crack the plastic frame. Maximum torque for cover screws is 5 kg-cm (0.36 lb-ft/0.49 Nm).

4.6 HDD Installation

To install the hard drive, please follow the steps below:

Step 1: Disconnect the system power cable.

Step 2: Remove the plastic back cover. See **Section 4.5** above.

Step 3: Remove the 10 round head retention screws and two flat head retention screws securing the internal aluminum cover (**Figure 4-4**).

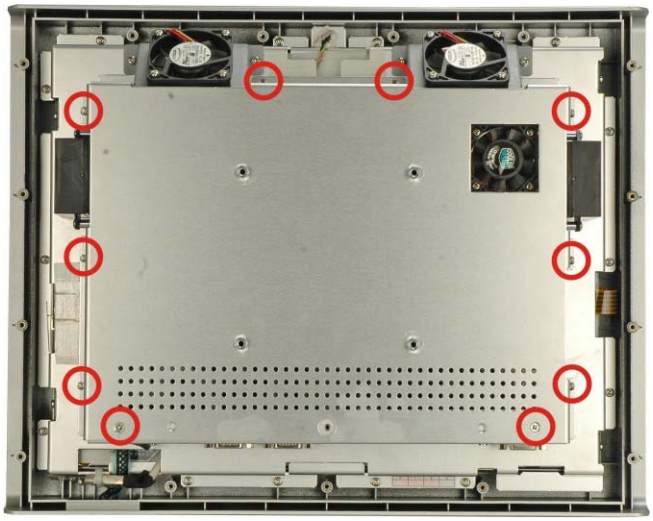


Figure 4-4: Aluminum Back Cover Retention Screws

Step 4: Lift the aluminum cover to remove.

Step 5: Remove the system fan on the top of the HDD bracket by removing the two retention screws (Figure 4-5).

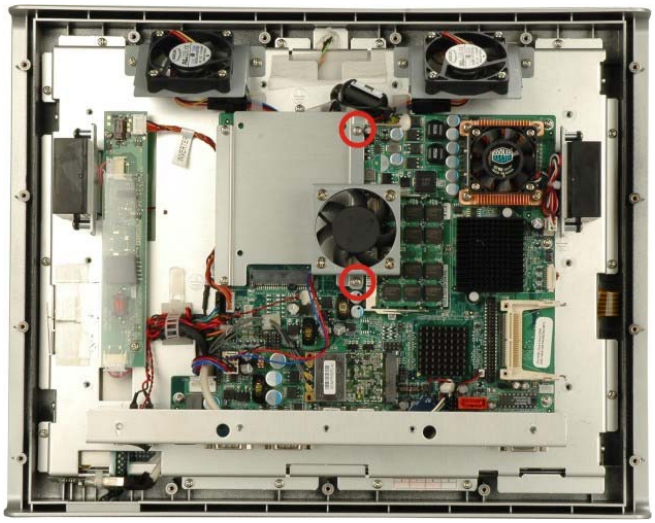


Figure 4-5: System Fan Retention Screws

Step 6: Remove the remaining two HDD bracket retention screws (**Figure 4-6**) and lift the HDD bracket off the panel PC.

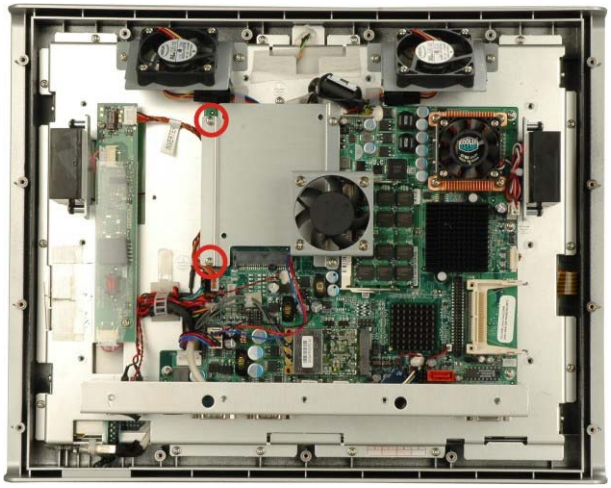


Figure 4-6: AFL-9652 Hard Drive Bracket Retention Screws

Step 7: Attach the hard drive to the hard drive bracket. To do this, align the four retention screw holes on the hard drive with the screw holes on the hard drive bracket. Fasten four flat head retention screws to secure the hard drive to the bracket (**Figure 4-7**).

Figure 4-7: Hard Drive Retention Screws

Step 8: Reinstall the hard drive bracket. Slide the hard drive bracket into its original position, making sure the SATA connectors on the hard drive connect with the SATA connectors on the motherboard.

Step 9: Fasten the hard drive bracket screws (Figure 4-8).

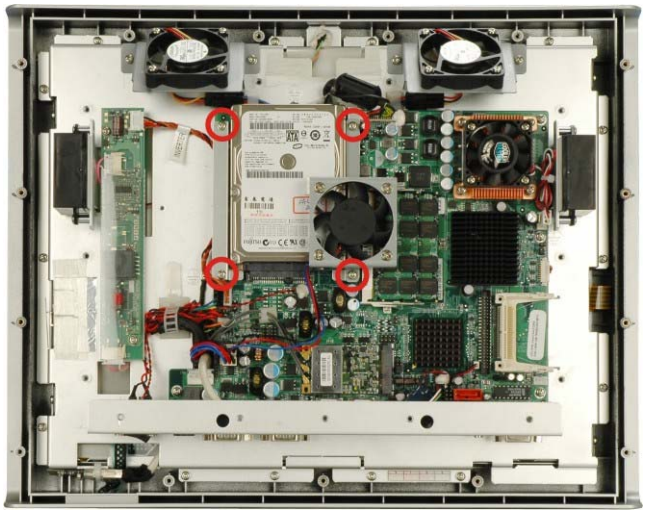


Figure 4-8: Hard Drive Installed

Step 10: Replace the aluminum back cover to the chassis.

Step 11: Replace the plastic back cover.

4.7 AT/ATX Mode Selection

AT and ATX power modes can both be used on the AFL-9652 series. The selection is made through an AT/ATX switch on the bottom panel (**Figure 4-9**). To select AT mode or ATX mode, follow the steps below.

Step 1: Locate the AT/ATX switch on the bottom panel (**Figure 4-9**).

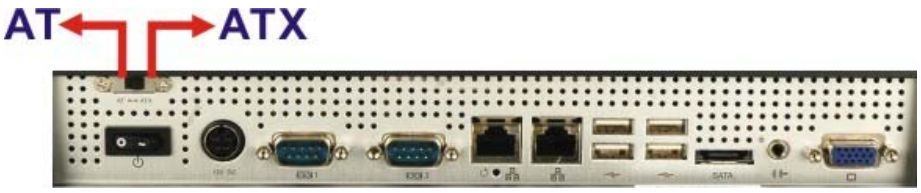


Figure 4-9: AT/ATX Switch Location

Step 2: The system is set to ATX mode by default. To change to the AT mode, just adjust the AT/ATX switch to AT mode.

Step 3: To switch from AT mode to ATX mode, please **load BIOS default or clear CMOS first**. Then adjust the switch to ATX mode.

NOTE:

To load BIOS default, please use the **Load Optimal Defaults** option of the Exit menu in the BIOS (refer to **Section 6.8** on **page 103**) to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

4.8 Mounting the System

WARNING!

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The four methods of mounting the AFL-9652 series are listed below.

- Wall mounting
- Panel mounting
- Arm mounting
- Rack mounting

The four mounting methods are described below.

4.8.1 Wall Mounting

To mount the flat panel PC onto the wall, please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four brackets screw holes on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 4-10**).

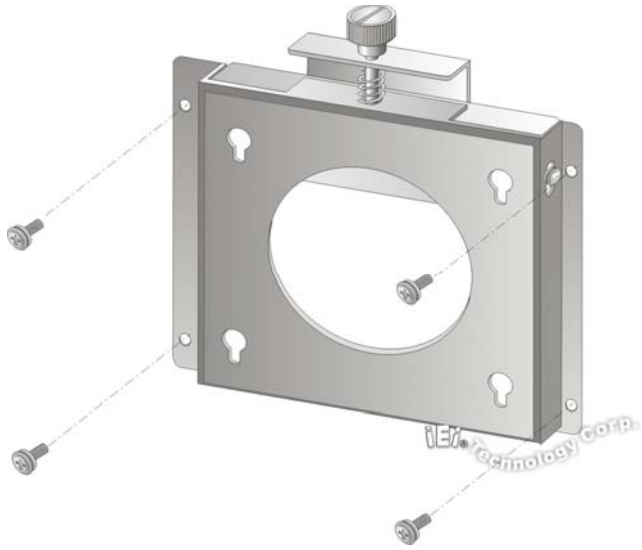


Figure 4-10: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the flat panel PC and tighten until the screw shank is secured against the rear panel (**Figure 4-11**).

Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 4-11**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

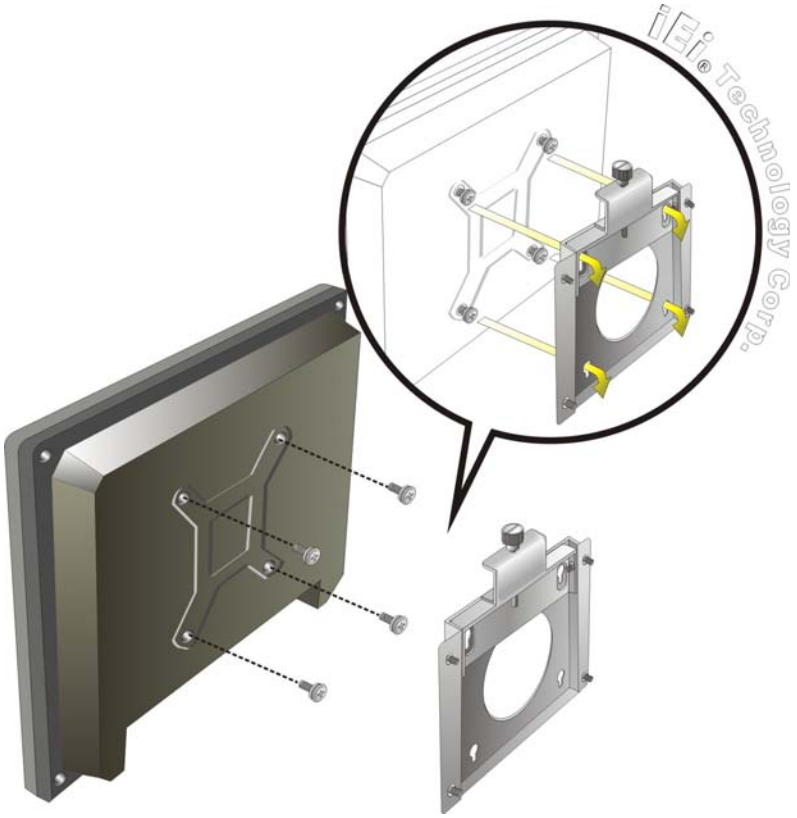


Figure 4-11: Chassis Support Screws

NOTE:

In the diagram below the bracket is already installed on the wall.

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 4-12**).

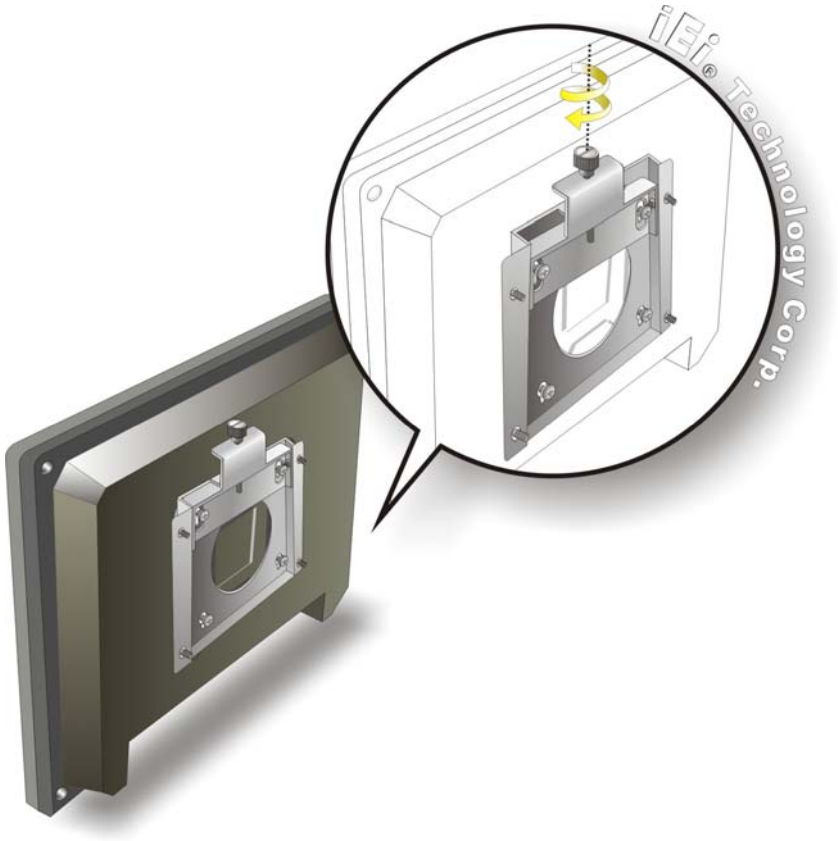


Figure 4-12: Secure the Panel PC

4.8.2 Panel Mounting

To mount the AFL-9652 series flat panel PC into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the flat panel PC.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the flat panel PC. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the flat panel PC but just large enough for the rear panel of the flat panel PC to fit through (Figure 4-13**,** Figure 4-14 and Figure 4-15).

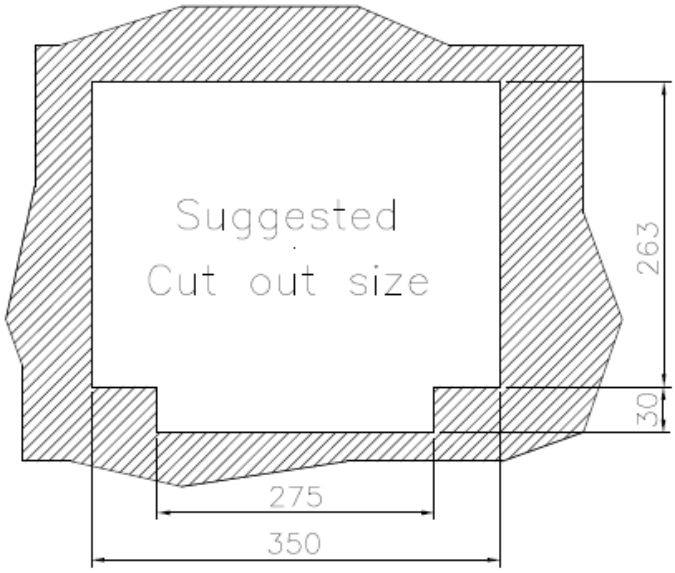


Figure 4-13: AFL-15C-9652 Cutout Dimensions (units in mm)

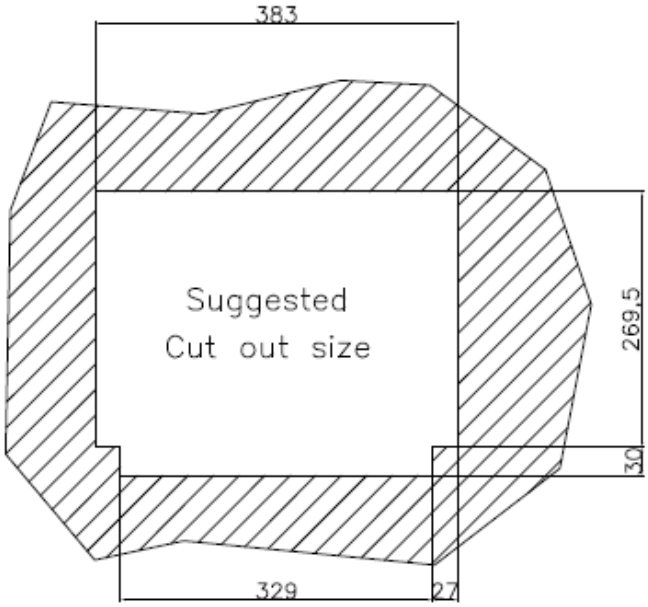


Figure 4-14: AFL-17C-9652 Cutout Dimensions (units in mm)

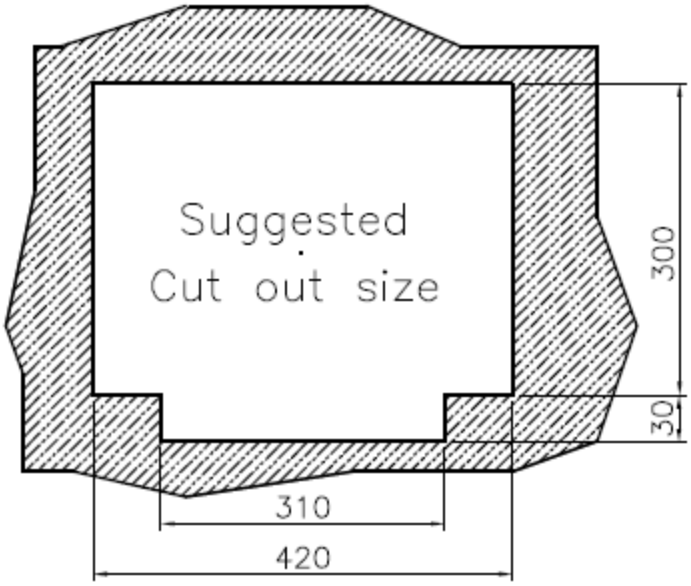


Figure 4-15: AFL-19C-9652 Cutout Dimensions (units in mm)

Step 3: Slide the flat panel PC through the hole until the plastic frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the plastic frame.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 4-16**).

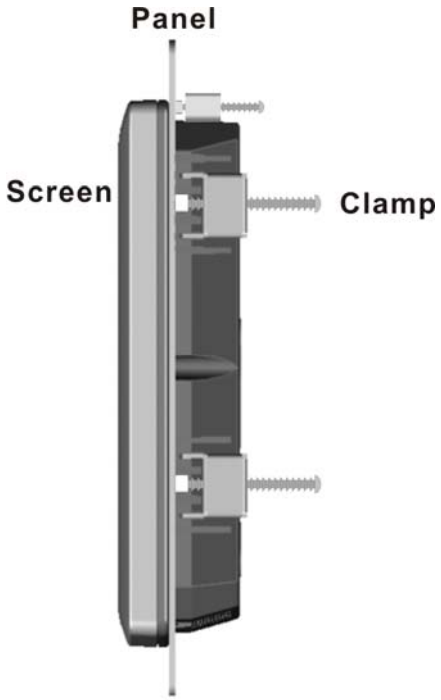


Figure 4-16: Tighten the Panel Mounting Clamp Screws

4.8.3 Arm Mounting

The AFL-9652 series is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the AFL-9652 series on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the AFL-9652 series flat panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the flat panel PC, as shown in **Figure 4-17**.

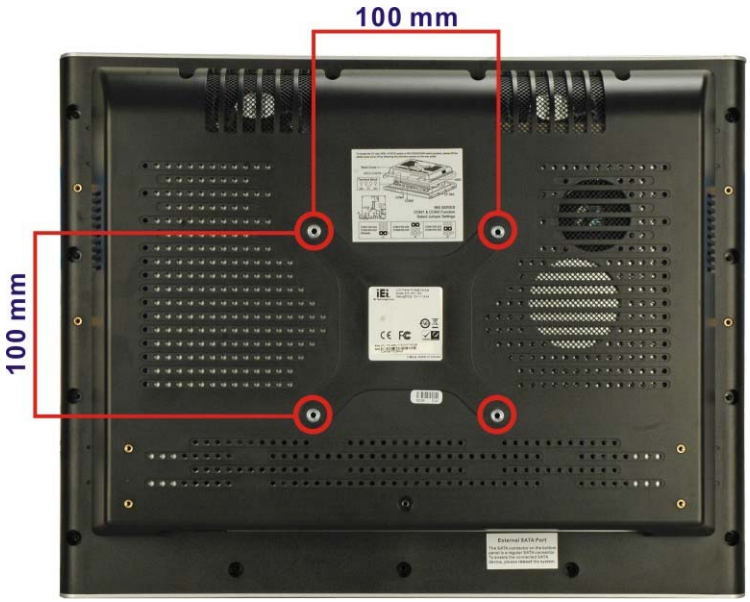


Figure 4-17: Arm Mounting Retention Screw Holes

Step 4: Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC.

4.8.4 Cabinet and Rack Installation

The AFL-9652 series flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:

NOTE:

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the AFL-9652 series flat panel PC and the rack/cabinet into which the AFL-9652 series is installed.

Step 1: Slide the rear of the AFL-9652 series flat panel PC through the rack/cabinet bracket until the plastic frame is flush against the front of the bracket (**Figure 4-18**).

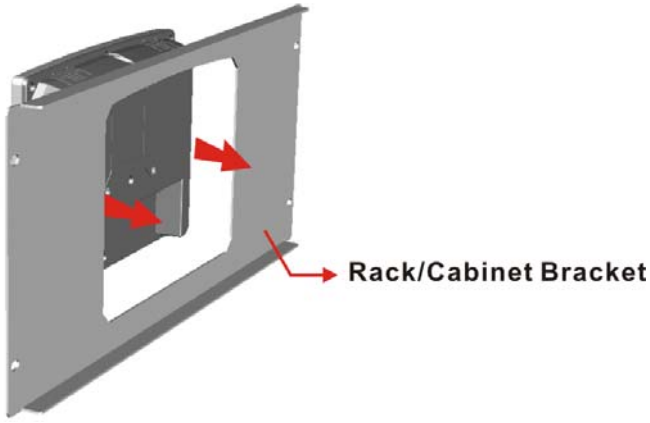


Figure 4-18: The Rack/Cabinet Bracket

Step 2: Insert the rack mounting clamps into the pre-formed holes along the edges of the flat panel PC, behind the ABS/PC plastic frame.

Step 3: Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 4-19**).

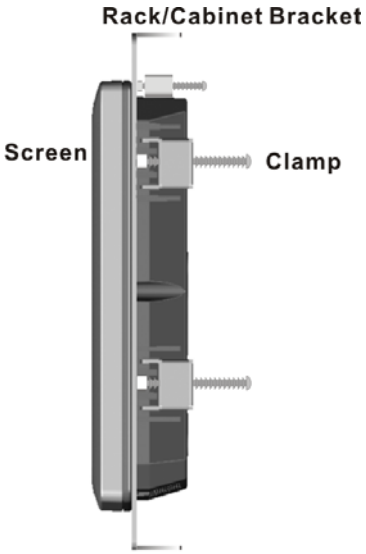


Figure 4-19: Secure the Rack/Cabinet Bracket

Step 4: Slide the flat panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 4-20**).

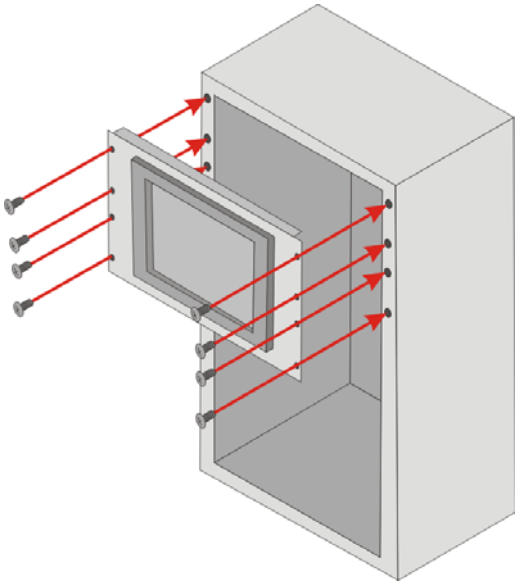


Figure 4-20: Install into a Rack/Cabinet

Step 5: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 4-20**).

4.9 Bottom Panel Connectors

All the external peripheral interface connectors are located at the bottom of the rear panel on the AFL-9652 panel PC.

4.9.1 LAN Connection

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors** on the bottom panel of the AFL-9652 Series.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the AFL-9652 series. See **Figure 4-21**.

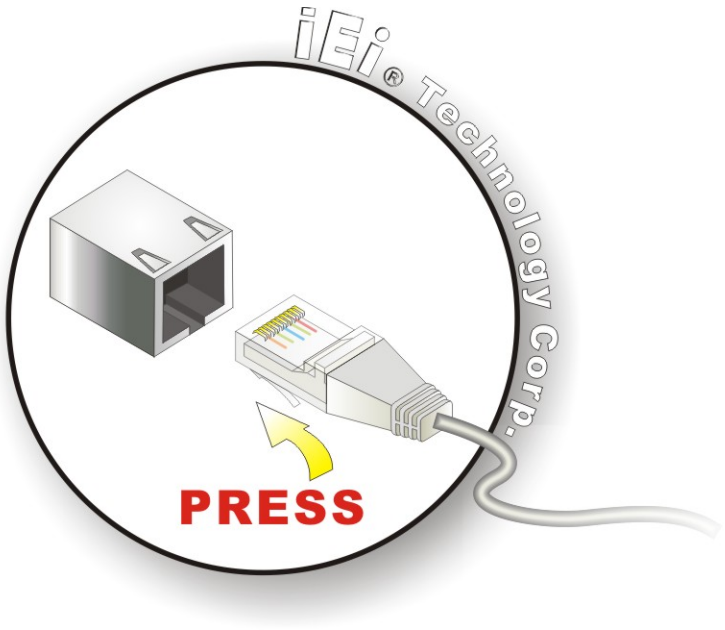


Figure 4-21: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

4.9.2 Serial Device Connection

The AFL-9652 Series has two single female DB-9 connectors on the bottom panel for a serial device. Follow the steps below to connect a serial device to the AFL-9652 Series panel PC.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 2**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the bottom panel. See **Figure 4-22**.

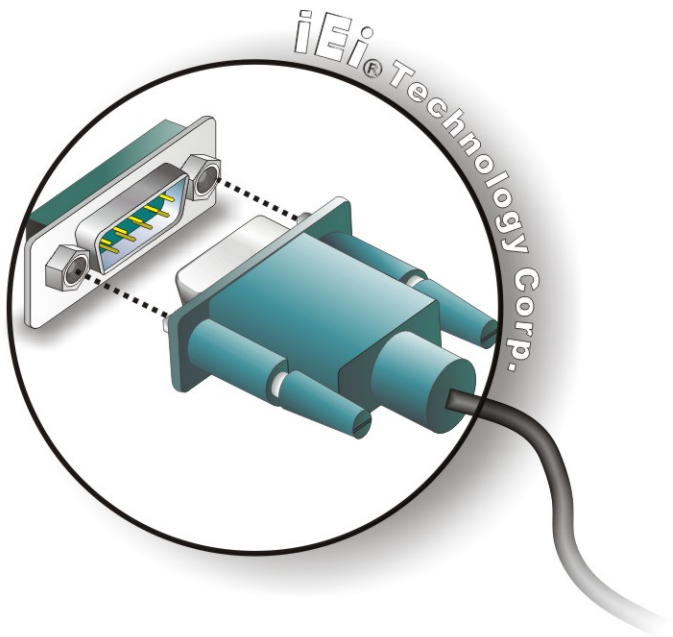


Figure 4-22: Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

4.9.3 USB Device Connection

There are four external USB 2.0 connectors. All connectors are perpendicular to the AFL-9652 series. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Locate the USB connectors**. The locations of the USB connectors are shown in **Chapter 2**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the bottom panel. See **Figure 4-23**.

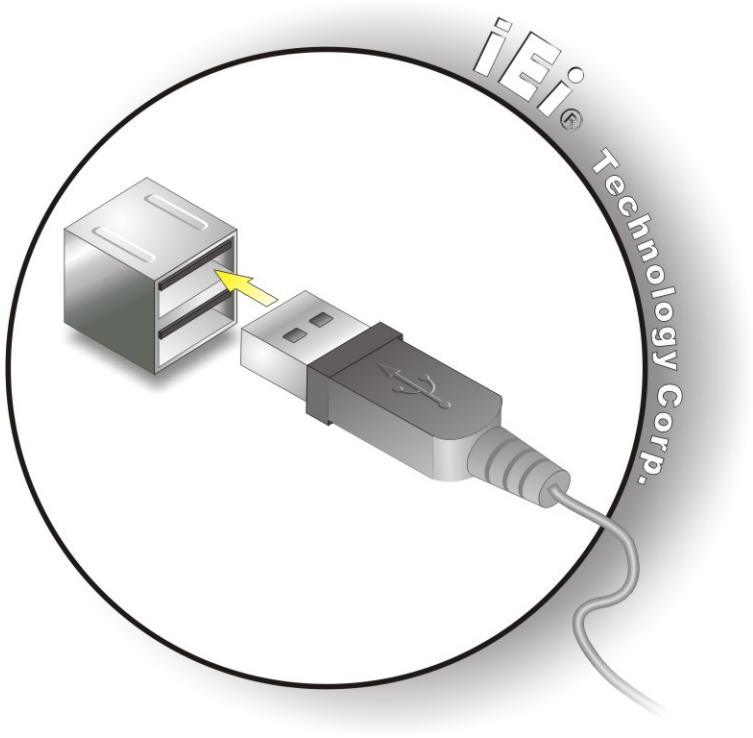


Figure 4-23: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

4.9.4 VGA Monitor Connection

The AFL-9652 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the AFL-9652, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the AFL-9652. See **Figure 4-24**.

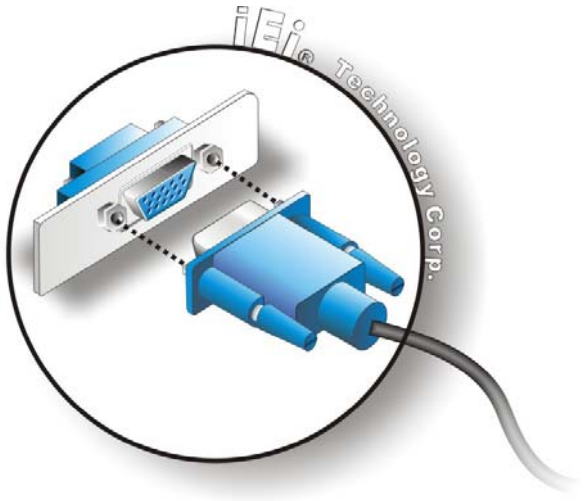


Figure 4-24: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

Chapter

5

System Maintenance

5.1 Introduction

If the components of the AFL-9652 series fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions and jumper settings for the AFL-9652 series are described below.

5.2 Motherboard Replacement

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to IEI to be replaced. If the system motherboard has failed, please contact the system vendor, reseller or an IEI sales person directly.

5.3 Internal Aluminum Cover Removal

WARNING!

Turn the power off before removing the back cover. Failing to do so may lead to severe damage of AFL-9652 series and injury to the body.

Over-tightening back cover screws will crack the plastic frame. Maximum torque for cover screws is 5 kg-cm (0.36 lb-ft/0.49 Nm).

WARNING!

Take antistatic precautions when working with internal components. The interior of the AFL-9652 series contains very sensitive electronic components. These components are easily damaged by electrostatic discharge (ESD). Before working with the internal components make sure all the anti-static precautions described earlier have been observed.

To replace any of the following components,

- DDR2 memory module
- Wireless LAN module
- Inverter

The internal aluminum back cover of the AFL-9652 series must be removed. To remove the aluminum back cover, remove the retention screws indicated in the sections below.

Remove the following screws:

- 2 x Flat head screws
- 8 x Round head screws

Screw positions are indicated below (**Figure 5-1**).

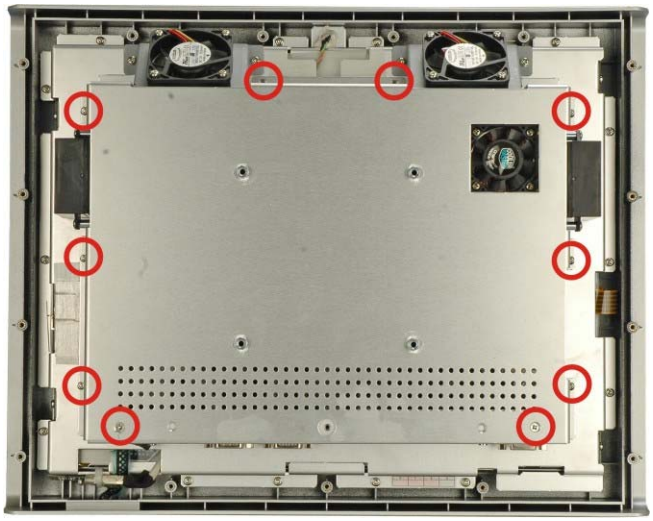


Figure 5-1: Aluminum Back Cover Retention Screws

5.4 Memory Module Replacement

The flat panel PC is preinstalled with a DDR2 memory module. If the memory module fails, follow the instructions below to replace the memory module.

Step 1: Remove the back cover. See **Section 4.5** above.

Step 2: Remove the internal aluminum back cover. See **Section 5.3** above.

Step 3: Locate the DDR2 memory module on the motherboard of the flat panel PC (**Figure 5-2**).

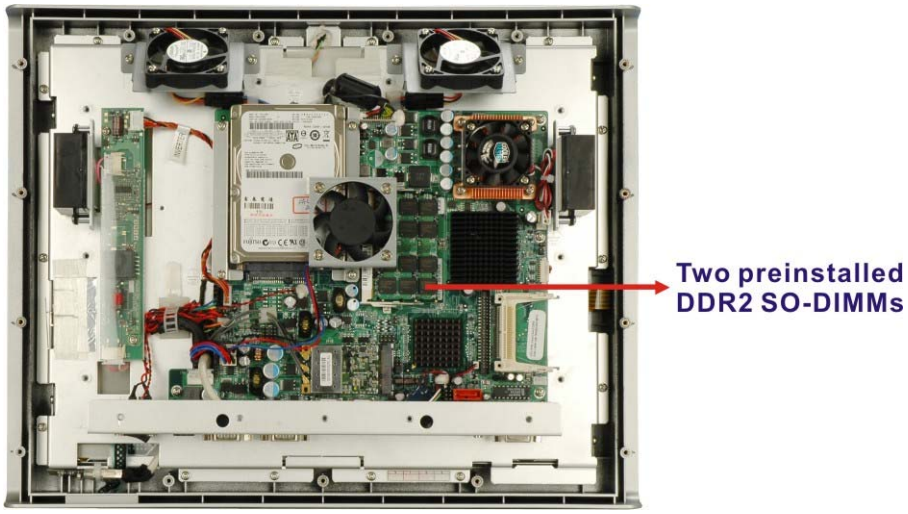


Figure 5-2: SO-DIMM Socket Locations

Step 4: Remove the DDR2 memory module by pulling both the spring retainer clips outward from the socket.

Step 5: Grasp the DDR2 memory module by the edges and carefully pull it out of the socket.

Step 6: Install the new DDR2 memory module by pushing it into the socket at an angle (**Figure 5-3**).

Step 7: Gently pull the spring retainer clips of the SO-DIMM socket out and push the rear of the DDR2 memory module down (**Figure 5-3**).

Step 8: Release the spring retainer clips on the SO-DIMM socket. They clip into place and secure the DDR2 memory module in the socket.

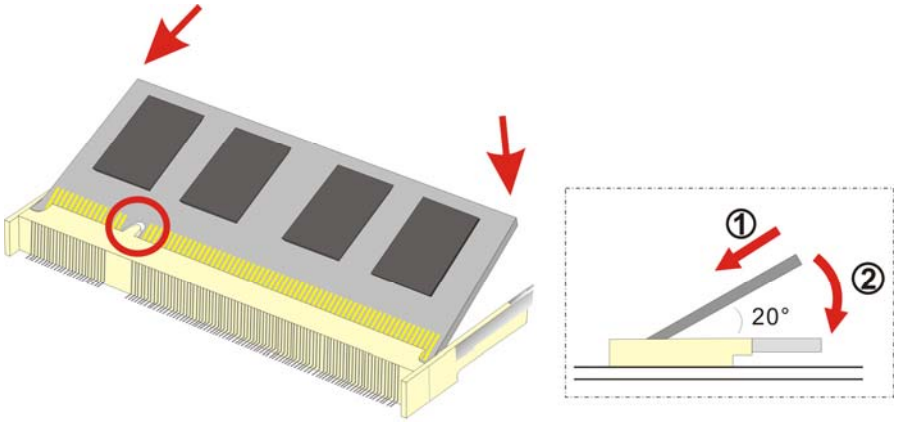
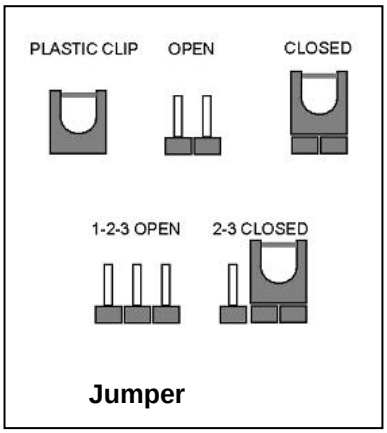


Figure 5-3: DDR2 SO-DIMM Module Installation

5.5 Jumper Settings

NOTE:

A jumper is a metal bridge that is used to close an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



Jumper

The six jumpers listed below are located on the motherboard and can be setup for AFL-9652 series.

- Clear CMOS jumper (J_CMOS1)
- COM1 and COM3 RI and voltage select (J10)
- COM3 RS-232/422/485 select (J9)
- CompactFlash® setup (J4)

5.5.1 Clear CMOS Jumper (J_CMOS1)

The Clear CMOS jumper setting is used to reset the CMOS to default settings.

J_CMOS1	Description
1-2	Normal Operation
2-3	Clear CMOS Setup

Table 5-1: Clear CMOS Jumper Settings

5.5.2 COM1 RI and Voltage Select (J10)

The COM1 pin-9 signal can be selected as 12V, 5V or Ring.

J10	Description
7-9	Use for RI
3-5	5 V
1-3	12 V

Table 5-2: COM1 RI and Voltage Settings

5.5.3 COM3 RI and Voltage Select (J10)

The COM3 pin-9 signal can be selected as 12V, 5V or Ring.

J10	Description
8-10	Use for RI
4-6	5 V
2-4	12 V

Table 5-3: COM3 RI and Voltage Settings

5.5.4 COM3 Mode Select

The following jumper selects RS-232, RS-422 or RS-485 mode for the COM3 serial port.

J7	Description
1-3	RS-422 TX-
3-5	RS-485 D-
2-4	RS-422 TX+
4-6	RS-485 D+

Table 5-4: COM3 RS-422/485 Selection

J8	Description
Short 1-2	DCD3 (RS-232)
Short 2-3	TX3- (RS-422/485)
Short 4-5	RXD3 (RS-232)
Short 5-6	TX3+ (RS-422/485)
Short 7-8	DSR3 (RS-232)
Short 8-9	RX3- (RS-422/485)
Short 10-11	RTS3 (RS-232)
Short 11-12	RX3+ (RS-422/485)

Table 5-5: COM3 Mode Selection

J9	Description
1-2	RS-232
3-4	RS-422
5-6	RS-485

Table 5-6: COM3 Mode Selection

5.5.4.1 COM3 RS-422 and RS-485 Pinouts

The pinouts for RS-422 and RS-485 operation of external serial port COM 3 are detailed below.

COM 3	RS-422 Description
Pin 1	TX-
Pin 2	TX+
Pin 6	RX-
Pin 7	RX+

Table 5-7: RS-422 Pinouts

COM 3	RS-485 Description
Pin 1	Data-
Pin 2	Data+

Table 5-8: RS-485 Pinouts

5.5.5 CompactFlash® Setup (J4)

The Master/Slave selection allows the CompactFlash® slot to be setup as either the IDE master or the IDE slave. If no other IDE device is used in the system, then the setting does not need to be changed.

J4	Description
Short	Master
Open	Slave

Table 5-9: CompactFlash® Master/Slave Selection

Chapter

6

AMI BIOS Setup

6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 6-1: BIOS Navigation Keys

6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in **Chapter 5** or disconnect the battery from the connector.

6.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

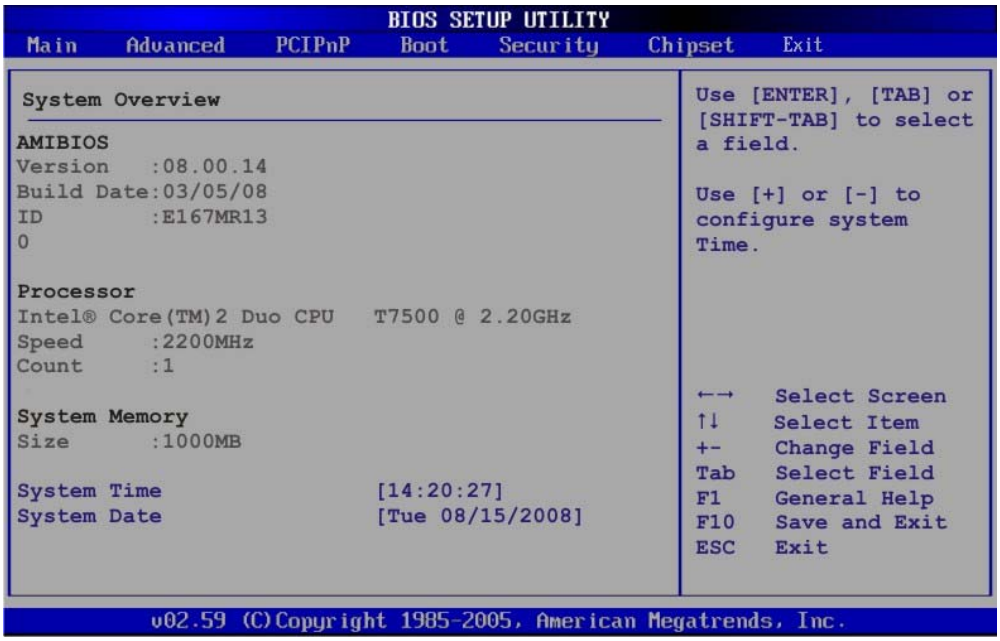
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

6.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS**: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- **Processor**: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed
  - **Count**: The number of CPUs on the motherboard
- **System Memory**: Displays the auto-detected system memory.

- **Size**: Lists memory size

The **System Overview** field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

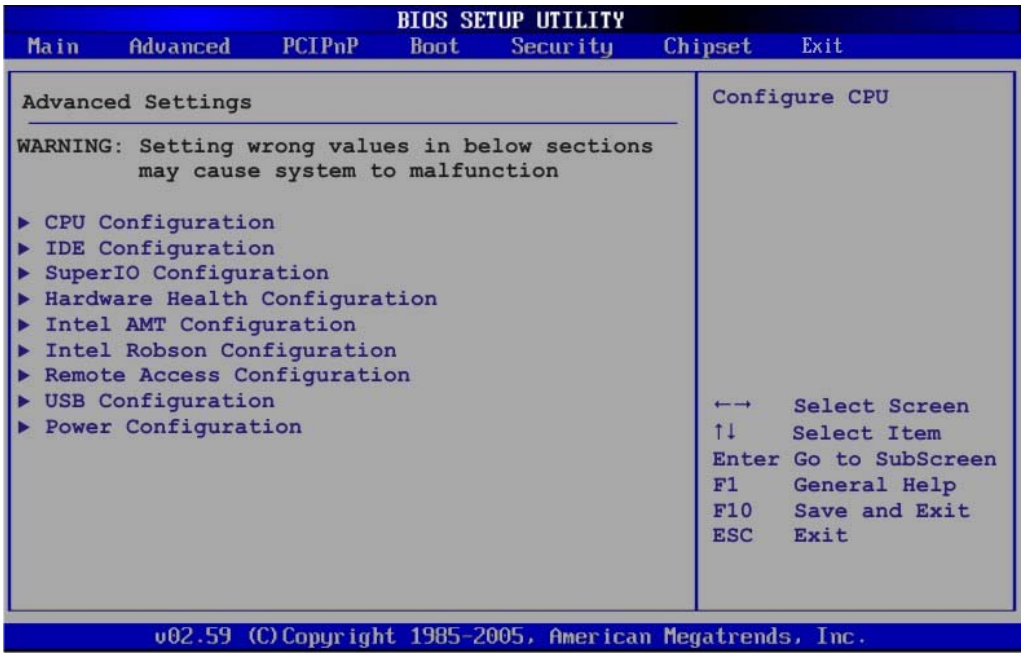
6.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

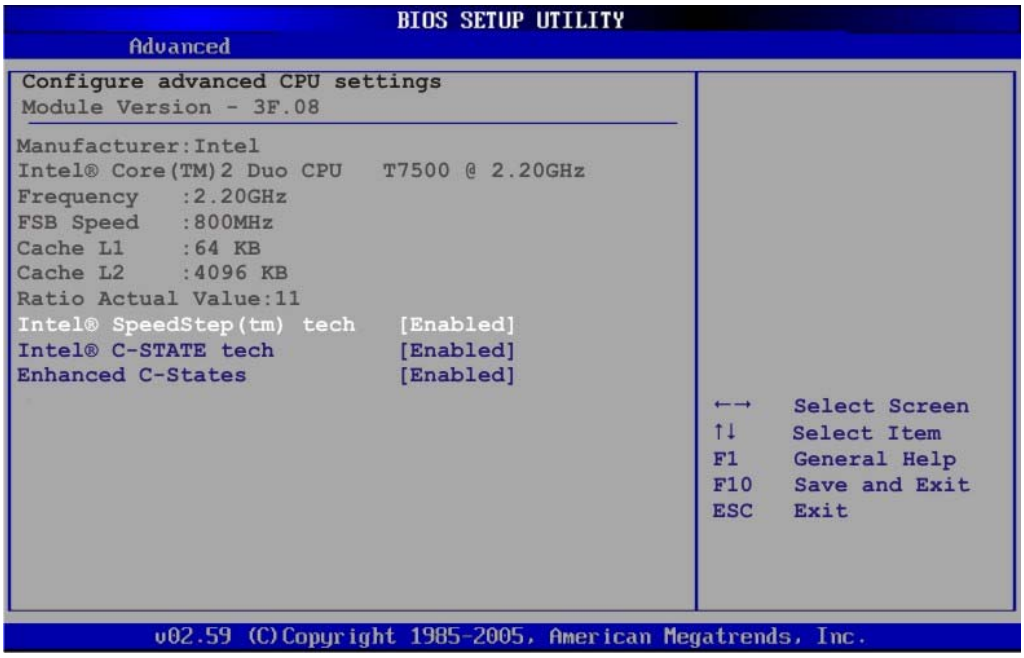
- CPU Configuration (see **Section 6.3.1**)
- IDE Configuration (see **Section 6.3.2**)
- Super IO Configuration (see **Section 6.3.3**)
- Hardware Health Configuration (see **Section 6.3.4**)
- Intel AMT Configuration (see **Section 6.3.5**)
- Intel Robson Configuration (see **Section 6.3.6**)
- Remote Access Configuration (see **Section 6.3.7**)
- USB Configuration (see **Section 6.3.8**)
- Power Configuration (see **Section 6.3.9**)



BIOS Menu 2: Advanced

6.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer**: Lists the name of the CPU manufacturer
- **Brand String**: Lists the brand name of the CPU being used
- **Frequency:** Lists the CPU processing speed
- **FSB Speed**: Lists the FSB speed
- **Cache L1**: Lists the CPU L1 cache size
- **Cache L2**: Lists the CPU L2 cache size

➔ **Intel (R) SpeedStep (tm) tech. [Enabled]**

Use the **Intel (R) SpeedStep (tm) tech.** option to enable or disable GV3. GV3 technology is a power-saving scheme where the OS optimizes overall power consumption by dynamically changing CPU frequency based on demand.

➔	**Disabled**		Disables SpeedStep i.e. GV3
➔	**Enabled**	**DEFAULT**	Enables SpeedStep i.e. GV3

6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.

BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** **DEFAULT** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6

storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [SATA Only]**

- ➔ **SATA Only** **DEFAULT**
- ➔ **SATA Pri., PATA Sec**
- ➔ **PATA Only**

➔ **IDE Master and IDE Slave**

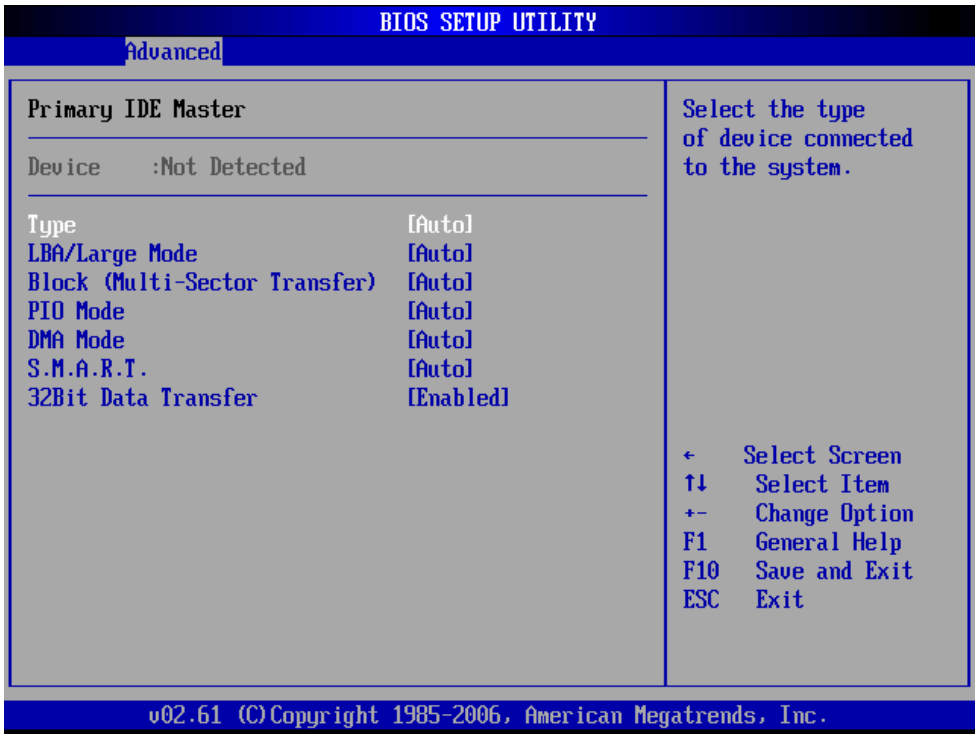
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Third IDE Slave
- Fourth IDE Master
- Fourth IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed** BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of

IDE disk drives on the specified channel.

➔ **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

- ➔ **ZIP**
- ➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto**	**DEFAULT**	BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
➔ **0**		PIO mode 0 selected with a maximum transfer rate of 3.3MBps
➔ **1**		PIO mode 1 selected with a maximum transfer rate of 5.2MBps
➔ **2**		PIO mode 2 selected with a maximum transfer rate of 8.3MBps
➔ **3**		PIO mode 3 selected with a maximum transfer rate of 11.1MBps
➔ **4**		PIO mode 4 selected with a maximum transfer rate of 16.6MBps (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

➔ **Auto**	**DEFAULT**	BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
➔ **SWDMA0**		Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
➔ **SWDMA1**		Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
➔ **SWDMA2**		Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps

- ➔ **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- ➔ **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- ➔ **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

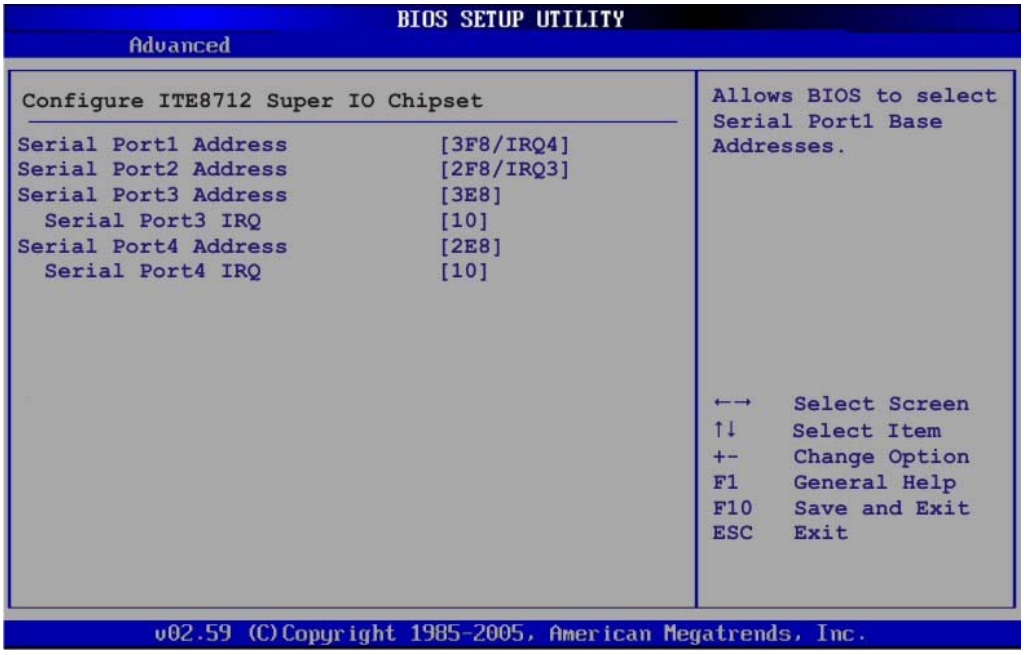
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

6.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 1
- ➔ **3F8/IRQ4** **DEFAULT** Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
- ➔ **3E8/IRQ4** Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 2
- ➔ **2F8/IRQ3** **DEFAULT** Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
- ➔ **3E8/IRQ4** Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3F8** Serial port 3 I/O port address is 3F8

- ➔ **2F8** Serial port 3 I/O port address is 2F8
- ➔ **3E8** **DEFAULT** Serial port 3 I/O port address is 3E8
- ➔ **2E8** Serial port 3 I/O port address is 2E8

➔ **Serial Port3 IRQ [10]**

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

- ➔ **10** **DEFAULT** Serial port 3 IRQ address is 10

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3F8** Serial port 4 I/O port address is 3F8
- ➔ **2F8** Serial port 4 I/O port address is 2F8
- ➔ **3E8** Serial port 4 I/O port address is 3E8
- ➔ **2E8** **DEFAULT** Serial port 4 I/O port address is 2E8

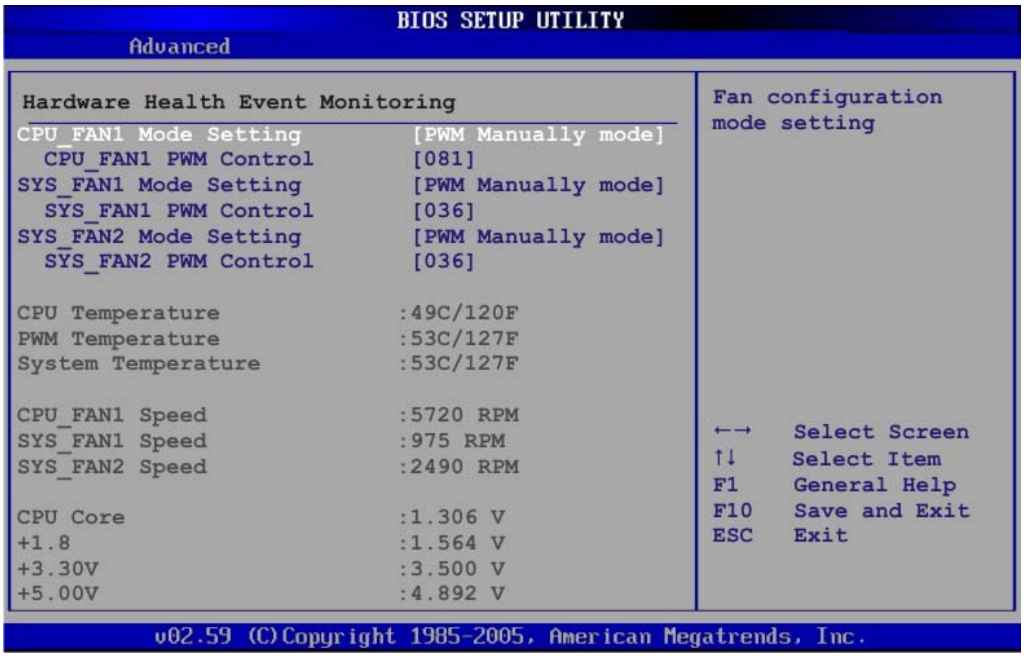
➔ **Serial Port4 IRQ [10]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- ➔ **10** **DEFAULT** Serial port 4 IRQ address is 10

6.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the operating temperature, fan speeds and system voltages.



BIOS Menu 7: Hardware Health Configuration

➔ **FAN Mode Setting [Full On Mode]**

Use the **FAN Mode Setting** option to configure the CPU fan or system fans.

➔ **Full On Mode**	**DEFAULT**	Fan is on all the time
➔ **Automatic mode**		Fan is off when the temperature is low enough. Parameters must be set by the user.
➔ **PWM Manual mode**		Pulse width modulation set manually

When the **CPU FAN 1 Mode Setting** option is in the **Automatic Mode**, the following parameters can be set.

- CPU Temp. Limit of OFF
- CPU Temp. Limit of Start
- CPU Fan Start PWM
- Slope PWM 1

When the **CPU FAN Mode Setting** option is in the **PWM Manual Mode**, the following parameters can be set.

- CPU Fan PWM control

➔ **CPU Temp. Limit of OFF [000]**

WARNING:

Setting this value too high may cause the fan to stop when the CPU is at a high temperature and therefore cause the system to be damaged.

The **CPU Temp. Limit of OFF** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **CPU Temp. Limit of OFF** option to select the CPU temperature at which the cooling fan should automatically turn off. To select a value, select the **CPU Temp. Limit of OFF** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **CPU Temp. Limit of Start [020]**

WARNING:

Setting this value too high may cause the fan to start only when the CPU is at a high temperature and therefore cause the system to be damaged.

The **CPU Temp. Limit of Start** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **CPU Temp. Limit of Start** option to select the CPU temperature at which the cooling fan should automatically turn on. When the fan

starts, it rotates using the starting pulse width modulation (PWM) specified in the **Fan 3 Start PWM** option below. To select a value, select the **CPU Temp. Limit of Start** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **CPU Fan Start PWM [070]**

The **Fan 3 Start PWM** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **Fan 3 Start PWM** option to select the PWM mode the fan starts to rotate with after the temperature specified in the **Temperature 3 Limit of Start** is exceeded. The Super I/O chipset supports 128 PWM modes. To select a value, select the **Fan 3 Start PWM** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

➔ **Slope PWM 1 [1 PWM]**

The **Slope PWM 1** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **Slope PWM 1** option to select the linear rate at which the PWM mode increases with respect to an increase in temperature. A list of available options is shown below:

- 0 PWM
- 1 PWM
- 2 PWM
- 4 PWM
- 8 PWM
- 16 PWM
- 32 PWM
- 64 PWM

➔ **CPU Fan PWM Control [070]**

The **CPU Fan PWM Control** option can only be set if the **CPU FAN Mode Setting** option is set to **Manual Mode**. Use the **CPU Fan PWM Control** option to select PWM duty cycle control. The PWM duty cycle specifies the width of the modulated pulse. A high value ensures a wide pulse and a low value ensures a narrow pulse. To select a value, select the **CPU Fan PWM Control** option and enter a decimal number between 000 and 127. The PWM Duty Cycle control range is specified below.

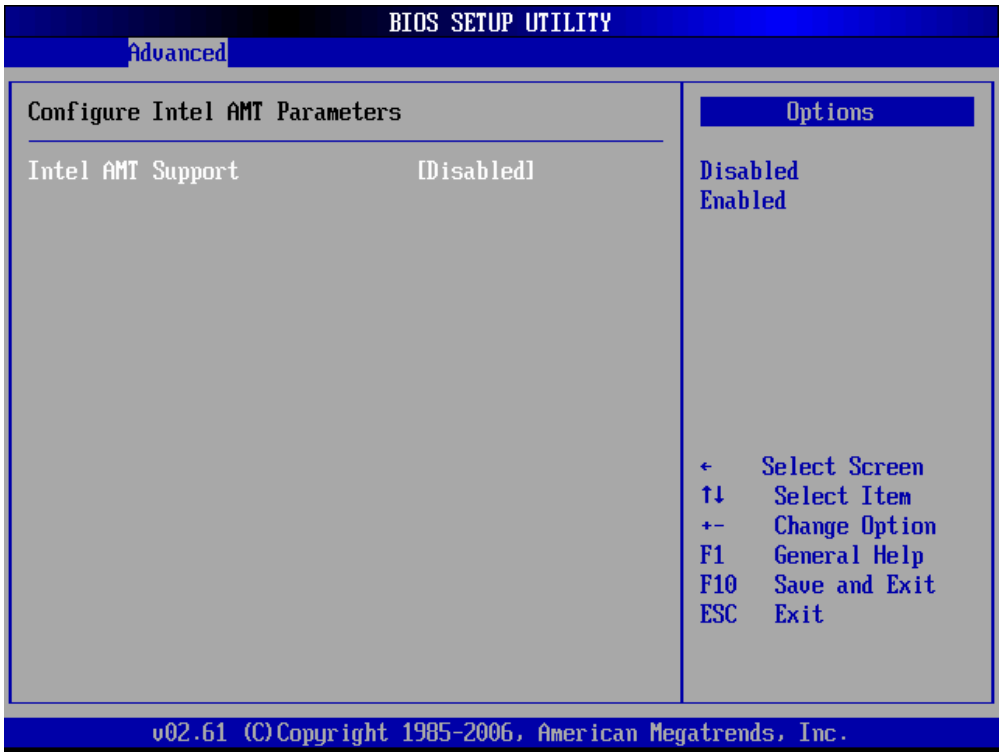
- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

The following system parameters and values are shown. The system parameters that are monitored are:

- **System Temperatures**: The following system temperatures are monitored
  - CPU Temperature
  - PWM Temperature
  - System Temperature
- **Fan Speeds**: The CPU cooling fan speed is monitored.
  - CPU Fan1 Speed
  - SYS_Fan1 Speed
  - SYS_FAN2 Speed
- **Voltages**: The following system voltages are monitored
  - CPU Core
  - +1.8V
  - +3.30V
  - +5.00V
  - +12.0V
  - +1.05V
  - +1.5V
  - +1.25V
  - VBAT

6.3.5 Intel AMT Configuration

The **Intel AMT Configuration** menu (**BIOS Menu 8**) configures the Intel® Active Management Technology (AMT) options.



BIOS Menu 8: Intel AMT Configuration

➔ **Intel AMT Support [Disabled]**

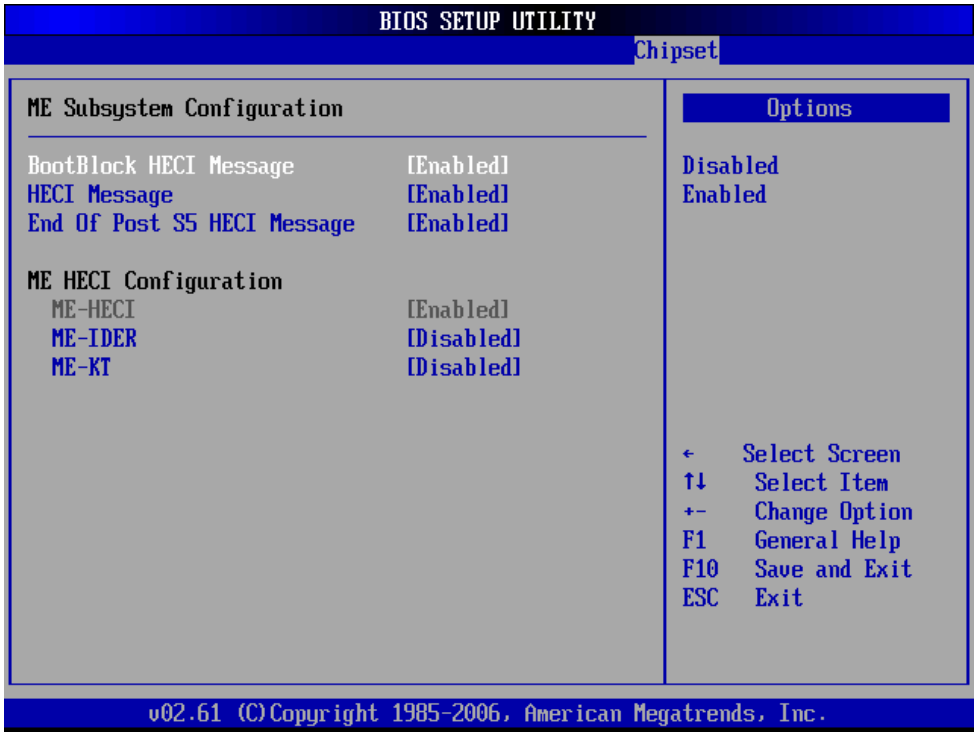
Use the **Intel AMT Support** option to enable or disable the Intel AMT support.

➔ **Disabled** **DEFAULT** The Intel® AMT function is disabled.

➔ **Enabled** The Intel® AMT function is enabled.

6.3.5.1 ME Subsystem Configuration

The **ME Subsystem Configuration** menu (**BIOS Menu 23**) allows the AMT subsystem (Management Engine, ME) and Host Embedded Controller Interface (HECI) driver options to be configured.



BIOS Menu 9: Me Subsystem Configuration

➔ **BootBlock HECI Message [Enabled]**

Use the **BootBlock HECI Message** option to enable or disable HECI message when booting up the system.

➔ **Disabled** The HECI message is disabled when booting up the system.

➔ **Enabled** **DEFAULT** The HECI message is enabled when booting up the system.

➔ **HECI Message [Enabled]**

Use the **HECI Message** BIOS option to enable or disable HECI message.

➔ **Disabled** The HECI message disabled.

➔ **Enabled** **DEFAULT** The HECI message enabled.

➔ **End Of Post S5 HECI Message [Enabled]**

Use the **End Of Post S5 HECI Message** option to enable or disable HECI message when the system is in the off (S5) state.

➔ **Disabled** The HECI message is disabled when the system is off.

➔ **Enabled** **DEFAULT** The HECI message enabled when the system is off.

➔ **ME-HECI [Enabled]**

The **ME-HECI** option is enabled by default and can not be changed.

➔ **ME-IDER [Disabled]**

Use the **ME-IDER** option to enable or disable the IDE-Redirection (IDE-R) function on an AMT-capable system.

➔ **Disabled** **DEFAULT** The IDE-R function is disabled.

➔ **Enabled** The IDE-R function allows an AMT-capable client system to access IDE devices and load OS from a management system. When an IDE-R session is established, the virtual drives are shown in the system.

➔ **ME-KT [Disabled]**

Use the **ME-KT** option to enable or disable the Keyboard and Text redirection (KT) function on an AMT-capable system. KT is also known as Serial-Over-Lan (SOL).

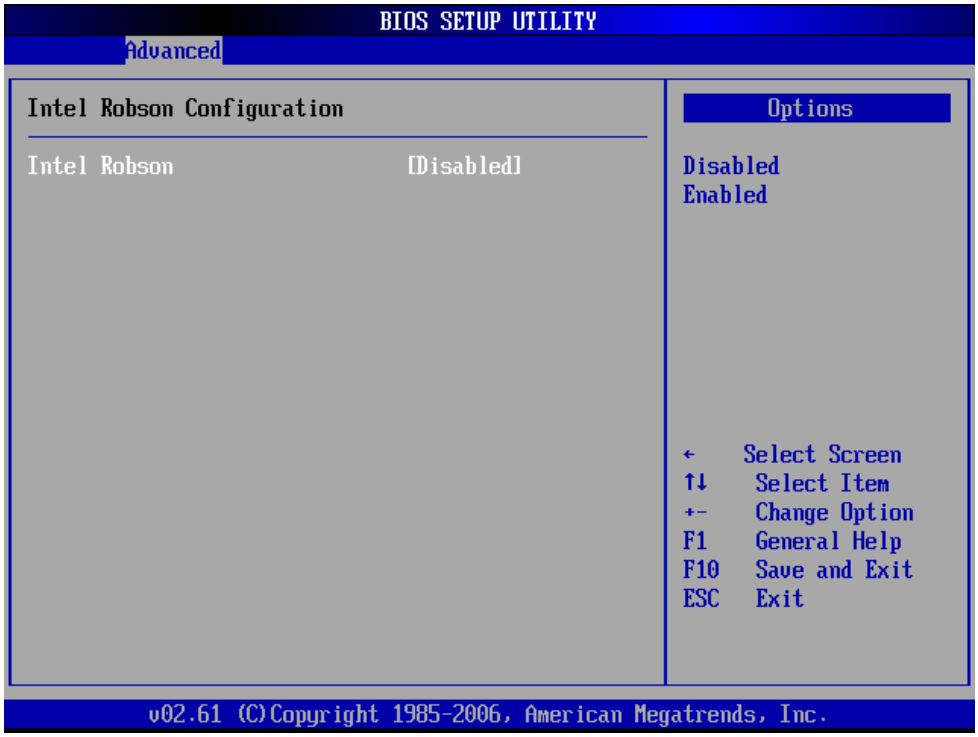
➔ **Disabled** **DEFAULT** The KT function of the ME is disabled.

➔ **Enabled** The KT function allows a management system to control an Intel® AMT client system remotely. The keyboard

interface of a managed client system, such as BIOS menu, is displayed through the management system.

6.3.6 Intel Robson Configuration

The **Intel Robson Configuration** menu (**BIOS Menu 10**) allows the Intel® Robson Technology option to be configured.



BIOS Menu 10: Intel Robson Configuration

➔ **Intel Robson [Disabled]**

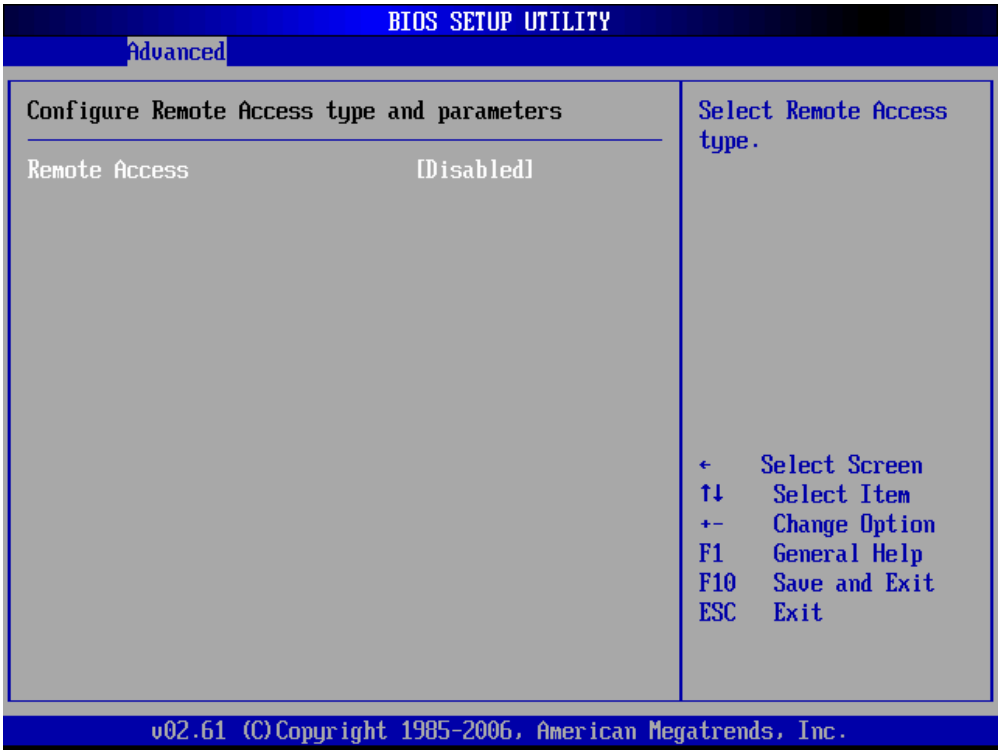
Use the **Intel Robson** BIOS option to enable or disable the Intel® Robson Technology feature. Intel® Robson, Intel® Turbo Memory, is a technology introduced by Intel® to boost a computer startup process.

➔ **Disabled** **DEFAULT** Disables the Intel® Robson feature

➔ **Enabled** Enables the Intel® Robson feature

6.3.7 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 11**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 11: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled**	**DEFAULT**	Remote access is disabled.
➔ **Enabled**		Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows users to select the serial port used for remote access.

➔ **COM1**	**DEFAULT**	System is remotely accessed through COM1
➔ **COM2**		System is remotely accessed through COM2
➔ **COM3**		System is remotely accessed through COM3
➔ **COM4**		System is remotely accessed through COM4
➔ **COM5**		System is remotely accessed through COM5

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**

- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

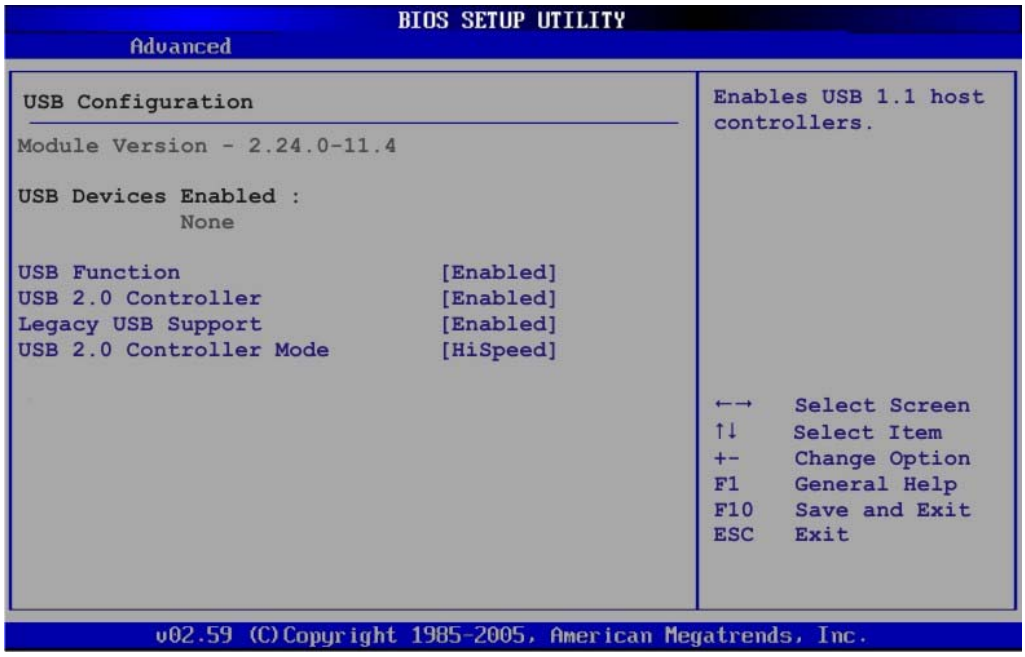
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI
➔ **VT100**		The target terminal type is VT100
➔ **VT-UTF8**		The target terminal type is VT-UTF8

6.3.8 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 12**) to read USB configuration information and configure the USB settings.



BIOS Menu 12: USB Configuration

➔ **USB Configuration**

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable the USB function.

➔ **Disabled** USB function support disabled

➔ **Enabled** **DEFAULT** USB function support enabled

➔ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

➔ **Disabled** USB 2.0 controller disabled

➔ **Enabled** **DEFAULT** USB 2.0 controller enabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled** Legacy USB support disabled

➔ **Enabled** **DEFAULT** Legacy USB support enabled

➔ **Auto** Legacy USB support disabled if no USB devices are connected

➔ **USB2.0 Controller Mode [HiSpeed]**

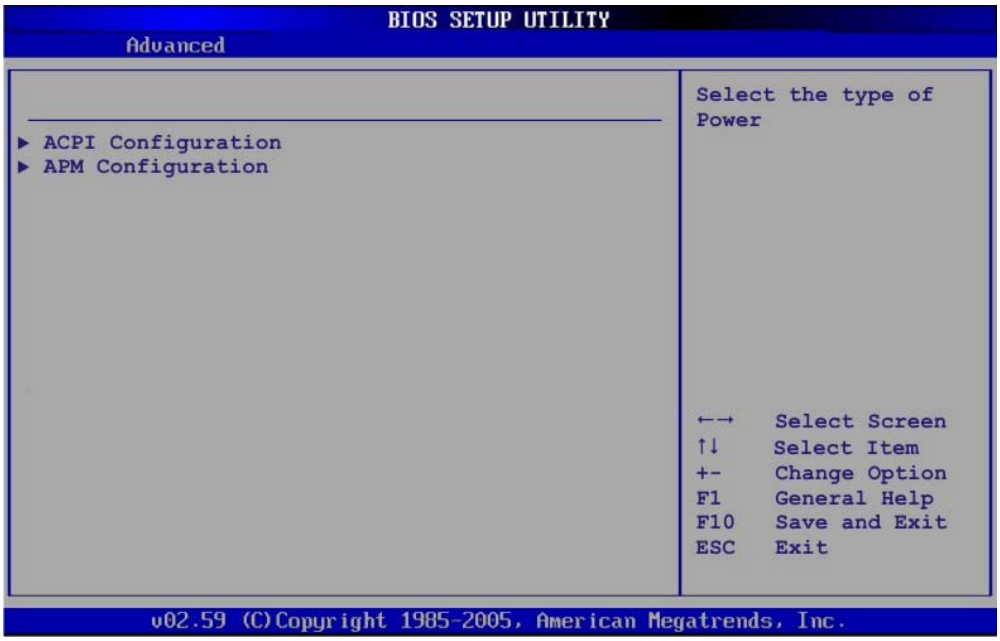
Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed** The controller is capable of operating at 12Mb/s

➔ **HiSpeed** **DEFAULT** The controller is capable of operating at 480Mb/s

6.3.9 Power Configuration

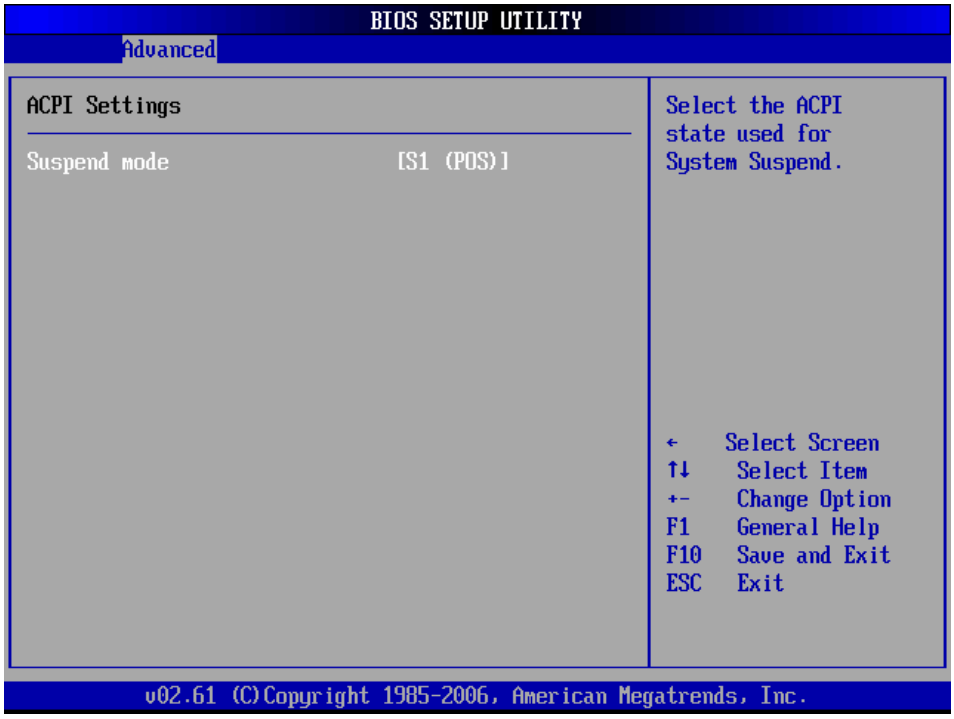
Use the **Power Configuration** menu (**BIOS Menu 13**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.



BIOS Menu 13: Power Configuration

6.3.9.1 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 8**) configures the Advanced Configuration and Power Interface (ACPI) option.



BIOS Menu 14: ACPI Configuration [Advanced\ Power Configuration]

➔ **Suspend Mode [S1(POS)]**

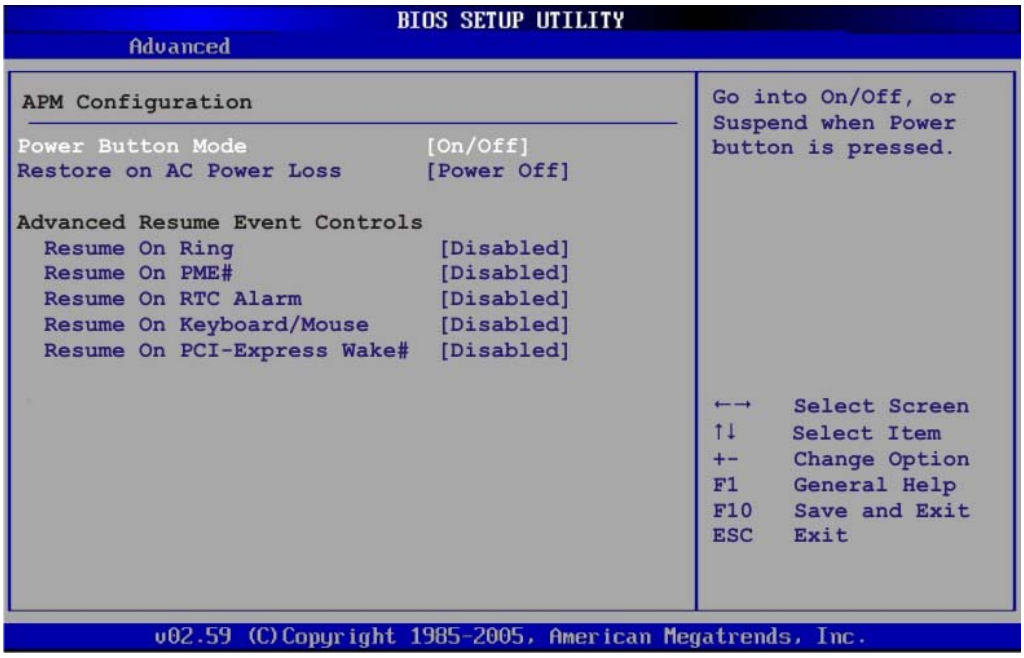
Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (POS)** **DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (STR)** System appears off. The CPU has no power; RAM is in slow refresh; the power supply is in a reduced power mode.

6.3.10 APM Configuration

The **APM Configuration** menu (**BIOS Menu 10**) allows the advanced power management options to be configured.


BIOS SETUP UTILITY
Advanced
APM Configuration
Power Button Mode [On/Off]
Restore on AC Power Loss [Power Off]
Advanced Resume Event Controls
Resume On Ring [Disabled]
Resume On PME# [Disabled]
Resume On RTC Alarm [Disabled]
Resume On Keyboard/Mouse [Disabled]
Resume On PCI-Express Wake# [Disabled]
Go into On/Off, or Suspend when Power button is pressed.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 15:Advanced Power Management Configuration

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

➔ **Suspend** When the power button is pressed the system goes into suspend mode

➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off** The system remains turned off

➔ **Power On** The system turns on

➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it

turns itself on. If it was off, it remains off.

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

➔ **Disabled**	**DEFAULT**	Wake event not generated by an incoming call
➔ **Enabled**		Wake event generated by an incoming call

➔ **Resume on PME# [Disabled]**

Use the **Resume on PME#** BIOS option to enable activity on the PCI PME (power management event) controller to rouse the system from a suspend or standby state.

➔ **Disabled**	**DEFAULT**	Wake event not generated by PCI PME controller activity
➔ **Enabled**		Wake event generated by PCI PME controller activity

➔ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

➔ **Disabled**	**DEFAULT**	The real time clock (RTC) cannot generate a wake event
➔ **Enabled**		If selected, the following appears with values that can be selected: ➔ **RTC Alarm Date (Days)** ➔ **RTC Alarm Time**

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

➔ **Resume on Keyboard/Mouse [Disabled]**

Use the **Resume on Keyboard/Mouse** BIOS option to enable activity on either the keyboard or mouse to rouse the system from a suspend or standby state. That is, the system is roused when the mouse is moved or a button on the keyboard is pressed.

➔ **Disabled**	**DEFAULT**	Wake event not generated by activity on the keyboard or mouse
➔ **Enabled**		Wake event generated by activity on the keyboard or mouse

➔ **Resume on PCI-Express WAKE# [Enabled]**

The **Resume on PCI-Express WAKE#** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI-Express bus.

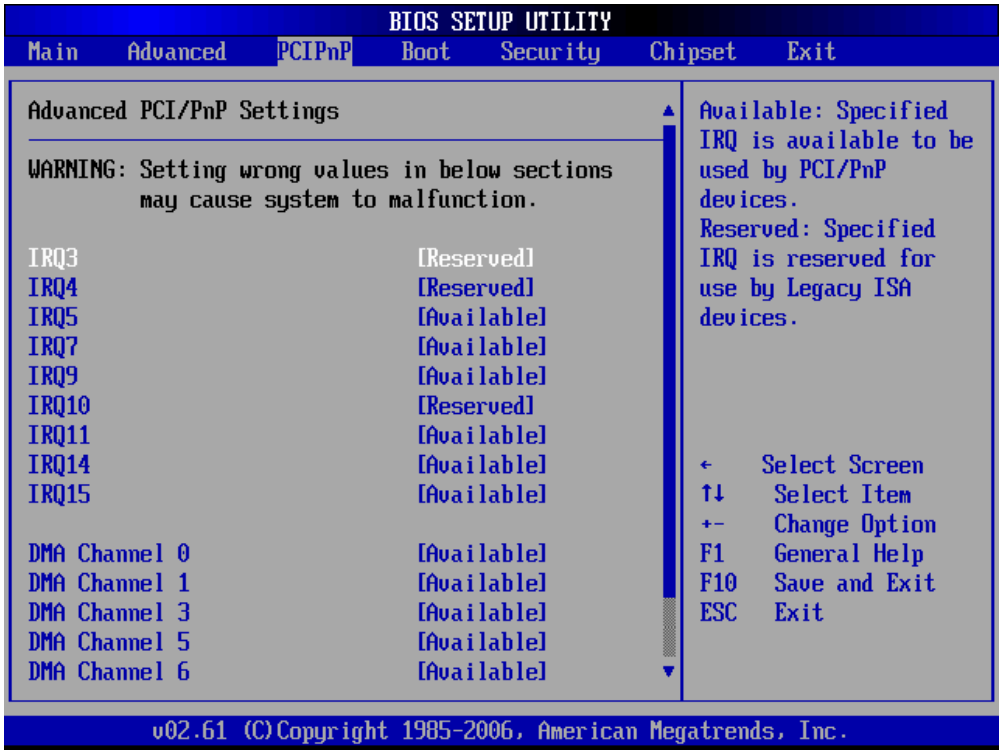
➔ **Disabled**		Wake event not generated by PCI-Express activity
➔ **Enabled**	**DEFAULT**	Wake event generated by PCI-Express activity

6.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 16**) to configure advanced PCI and PnP settings.

WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Reserved]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 16: PCI/PnP Configuration

➔ **IRQ#**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** The specified IRQ is available to be used by PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses options are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7

- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

➔ **Reserved Memory Size [Disabled]**

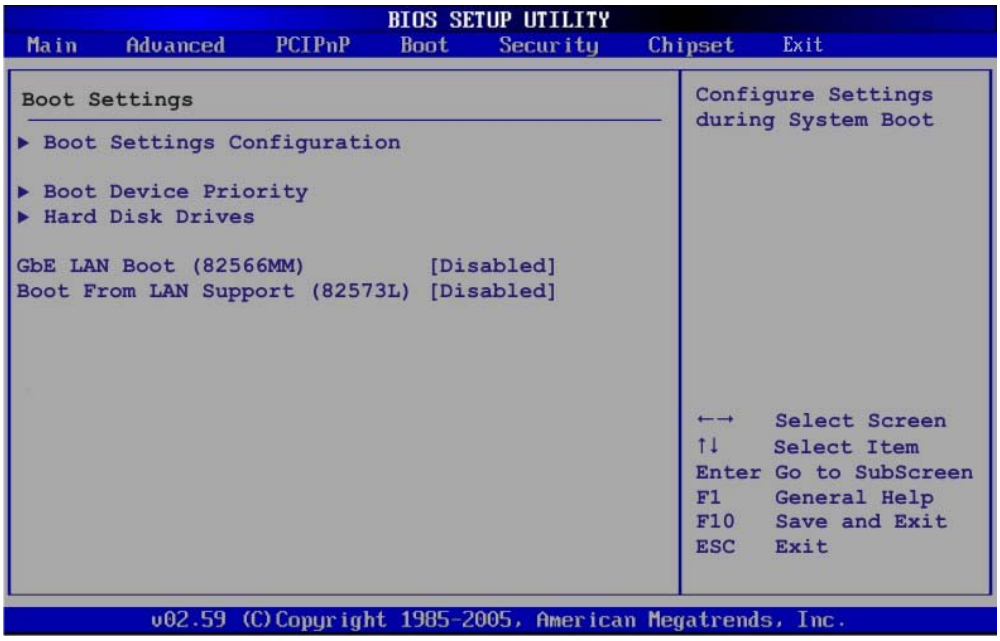
Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔ **Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔ **16K**		16KB reserved for legacy ISA devices
➔ **32K**		32KB reserved for legacy ISA devices

➔ **64K** 54KB reserved for legacy ISA devices

6.5 Boot

Use the **Boot** menu (**BIOS Menu 17**) to configure system boot options.



BIOS Menu 17: Boot

➔ **GbE LAN Boot (82566MM) [Disabled]**

Use the **GbE LAN Boot (82566MM)** option to enable the Intel® 82566MM GbE controller to boot the system.

➔ **Enabled** Can be booted from a remote system through the Intel® 82566MM GbE controller

➔ **Disabled** **DEFAULT** Cannot be booted from a remote system through the Intel® 82566MM GbE controller

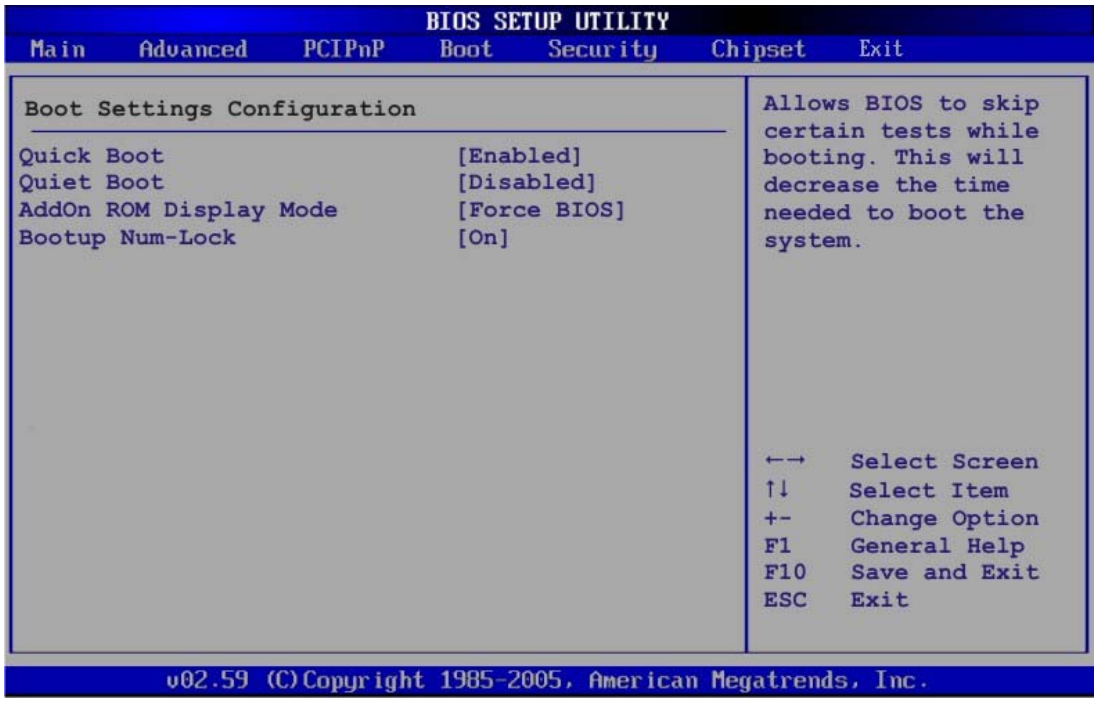
➔ **Boot From LAN Support (82573L) [Disabled]**

Use the **BOOT From LAN Support (82573L)** option to enable the Intel® 82573L PCIe GbE controller to boot the system.

➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the Intel® 82573L PCIe GbE controller
➔ **Enabled**		Can be booted from a remote system through the Intel® 82573L PCIe GbE controller

6.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 18**) to configure advanced system boot options.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 18: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Disabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**	**DEFAULT**	Normal POST messages displayed
➔ **Enabled**		OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**	**DEFAULT**	The system forces third party BIOS to display during system boot.
➔ **Keep Current**		The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off**	Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key

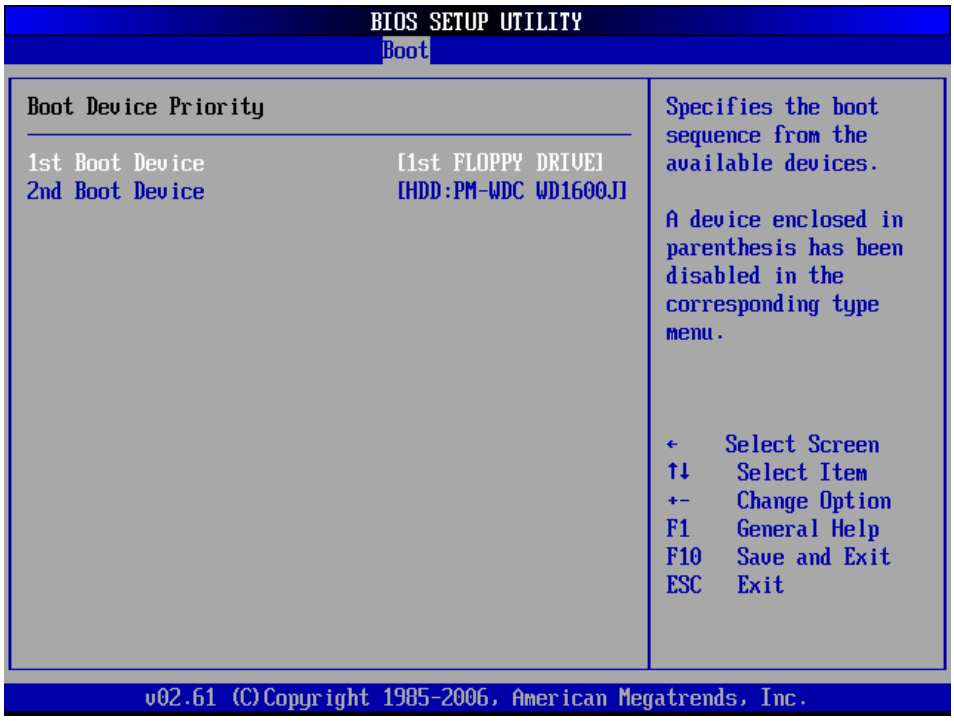
located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

6.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 19**) to specify the boot sequence from the available devices. Possible boot devices may include:

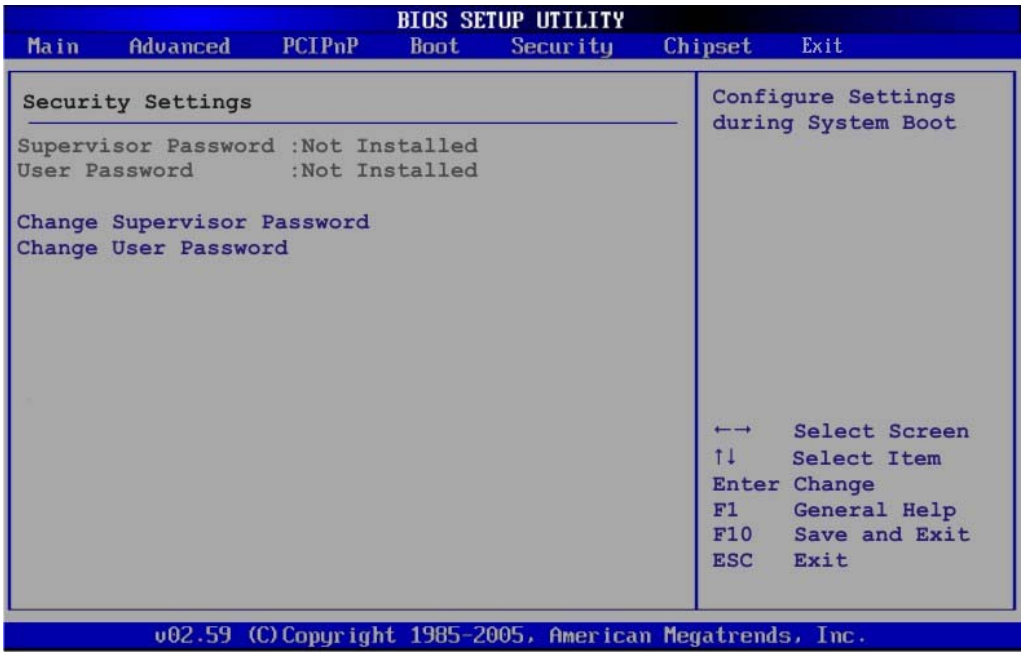
- USB
- HDD
- CD/DVD


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [1st FLOPPY DRIVE]
2nd Boot Device [HDD:PM-WDC WD1600J]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

BIOS Menu 19: Boot Device Priority Settings

6.6 Security

Use the **Security** menu (**BIOS Menu 20**) to set system and user passwords.



BIOS Menu 20: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

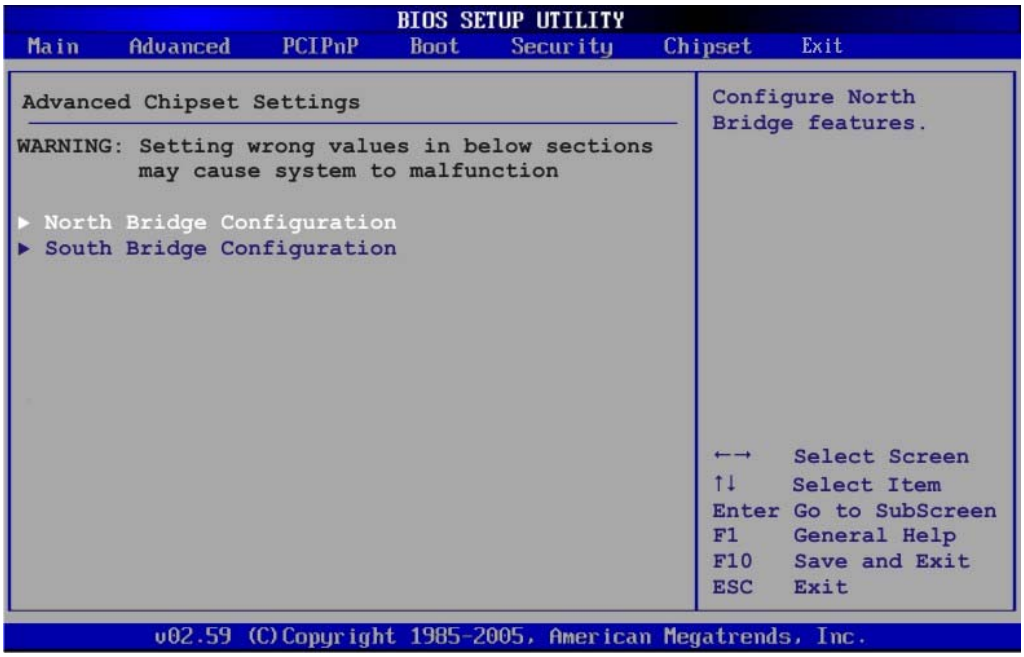
Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

6.7 Chipset

Use the **Chipset** menu to access the NorthBridge, SouthBridge and ME Subsystem configuration menus.

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction
▶ North Bridge Configuration
▶ South Bridge Configuration
Configure North Bridge features.
←→ Select Screen
↑↓ Select Item
Enter Go to SubScreen
F1 General Help
F10 Save and Exit
ESC Exit
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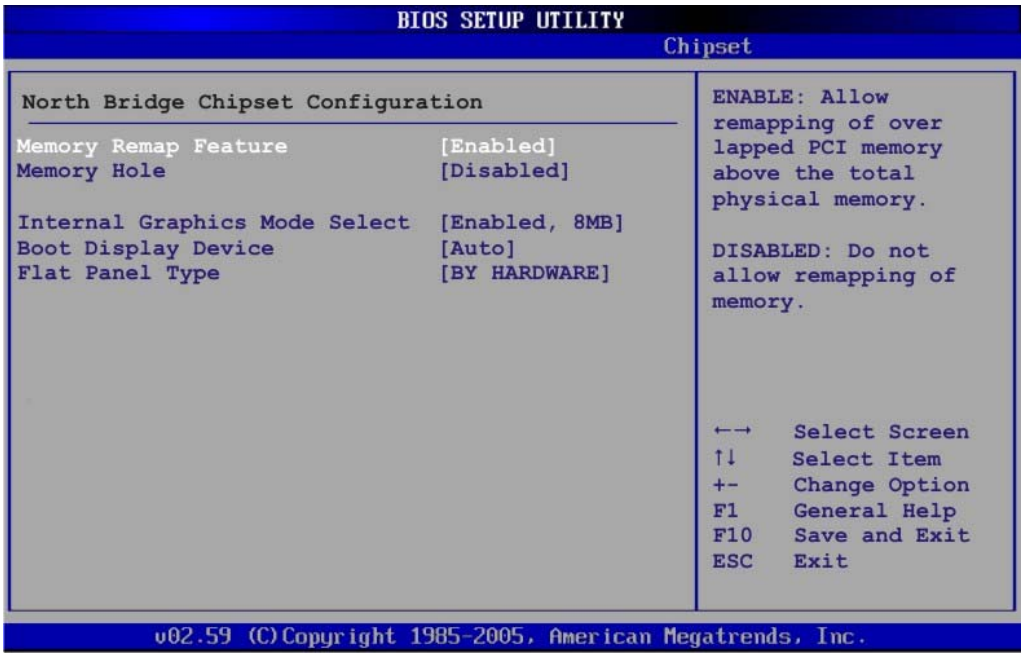
BIOS Menu 21: Chipset Configuration

6.7.1 North Bridge Configuration

Use the **North Bridge Chipset Configuration** menu (**BIOS Menu 22**) to configure the Northbridge chipset.


BIOS SETUP UTILITY
Chipset
North Bridge Chipset Configuration
Memory Remap Feature [Enabled]
Memory Hole [Disabled]
Internal Graphics Mode Select [Enabled, 8MB]
Boot Display Device [Auto]
Flat Panel Type [BY HARDWARE]
ENABLE: Allow remapping of over lapped PCI memory above the total physical memory.
DISABLED: Do not allow remapping of memory.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 22: Chipset Configuration

➔ **Memory Remap Feature [Enabled]**

Use the **Memory Remap Feature** option to allow the overlapped PCI memory above the total physical memory to be remapped.

➔ **Enabled** **DEFAULT** Overlapped PCI memory can be remapped

➔ **Disabled** Overlapped PCI memory cannot be remapped

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled** **DEFAULT** Memory is not reserved for ISA expansion cards

➔ **15MB – 16MB** Between 15MB and 16MB of memory is reserved for

➔ **Internal Graphics Mode Select [Enable, 8MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**		
➔ **Enable, 1MB**		1MB of memory used by internal graphics device
➔ **Enable, 8MB**	**DEFAULT**	8MB of memory used by internal graphics device

➔ **Boot Display Device [Auto]**

Use the **Display Device Select** BIOS feature to determine what displays are used. Dual display functionality is enabled here. Dual display configuration options are listed below:

- Auto **DEFAULT**
- CRT
- LFP

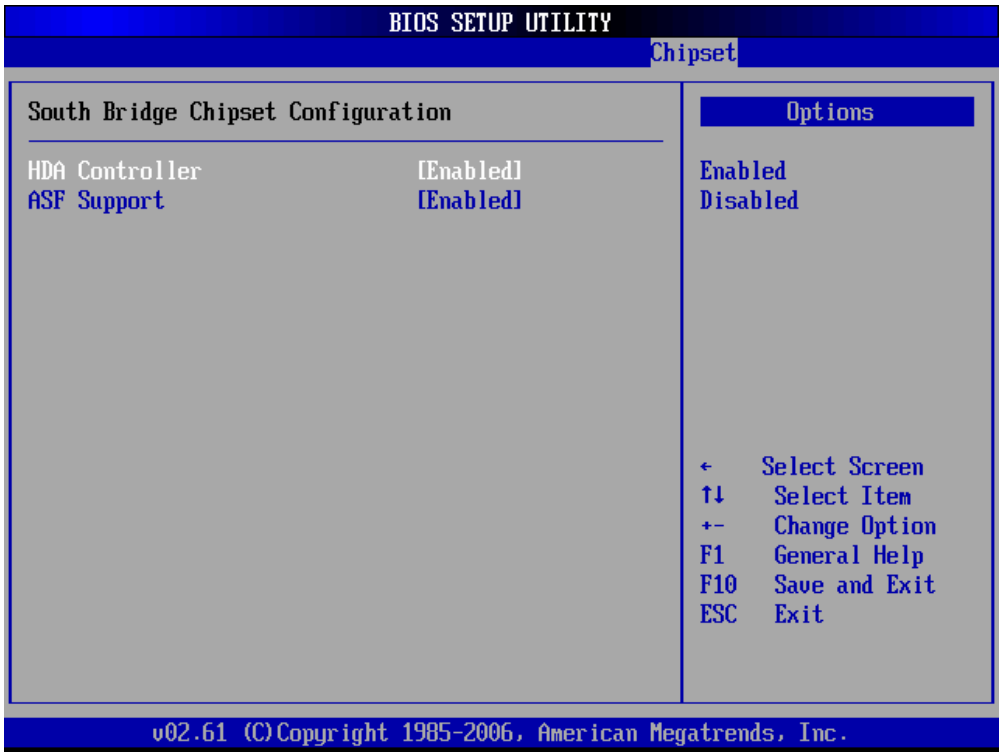
➔ **Flat Panel Type [BY HARDWARE]**

Use the **Flat Panel Type** to determine the LCD panel resolution. Configuration options are listed below:

- 640 x 480 18b
- 800 x 600 18b
- 1024 x 768 24b
- 1280 x 1024 48b
- 1600 x 1200 48b
- BY HARDWARE **DEFAULT**

6.7.2 South Bridge Configuration

The **South Bridge Configuration** menu (**BIOS Menu 23**) allows the Southbridge chipset to be configured.



BIOS Menu 23:Southbridge Chipset Configuration

➔ **HDA Controller [Enabled]**

Use the **HDA Controller** option to enable the Southbridge high definition audio controller. If the HDA device has been connected to the system, this option should be enabled.

➔ **Enabled**	**DEFAULT**	Southbridge HDA controller is enabled
➔ **Disabled**		Southbridge HDA controller is disabled

➔ **ASF Support [Enabled]**

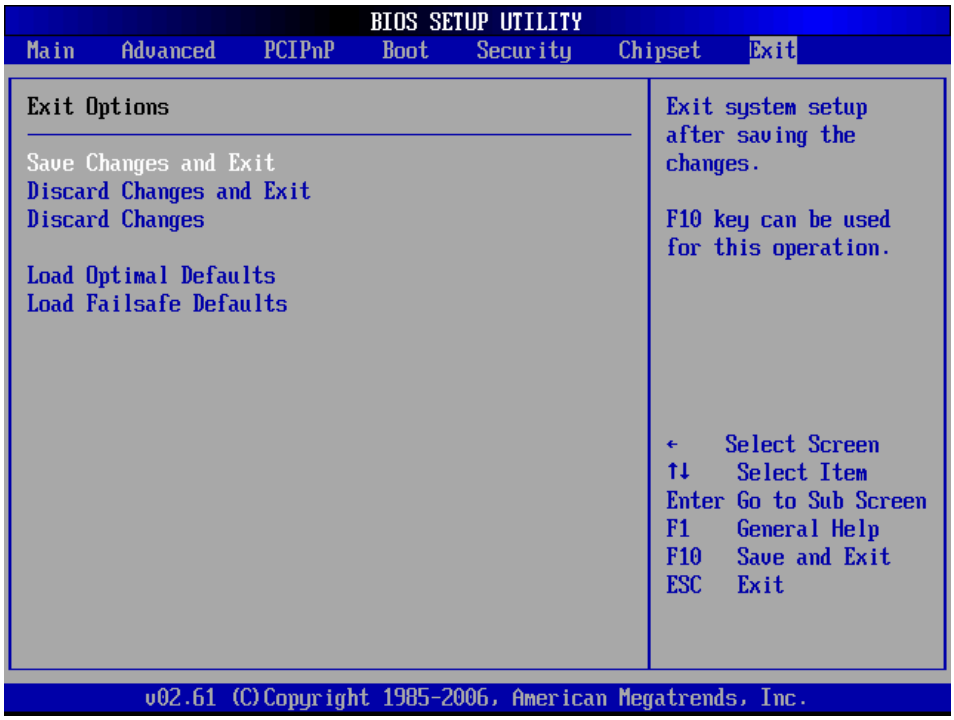
Use the **ASF Support** BIOS option to control the system's ability to connect to a remote management server.

➔ **Disabled** The system will not communicate with a remote management server.

➔ **Enabled** **DEFAULT** The Alert Standard Format (ASF) controller is activated and can communicate with a remote management server.

6.8 Exit

Use the **Exit** menu (**BIOS Menu 24**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 24: Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

Software Drivers

7.1 Available Software Drivers

NOTE:

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Intel® chipset driver
- VGA driver
- LAN drivers
- Audio driver
- SATA driver
- Intel® Active Management Technology (AMT) driver

Installation instructions are given below.

7.2 Intel® Chipset Driver

To install the Intel® chipset driver, please follow the steps below.

Step 1: Select **INF** from the driver CD menu.

Step 2: The window shown in **Figure 7-1** appears.

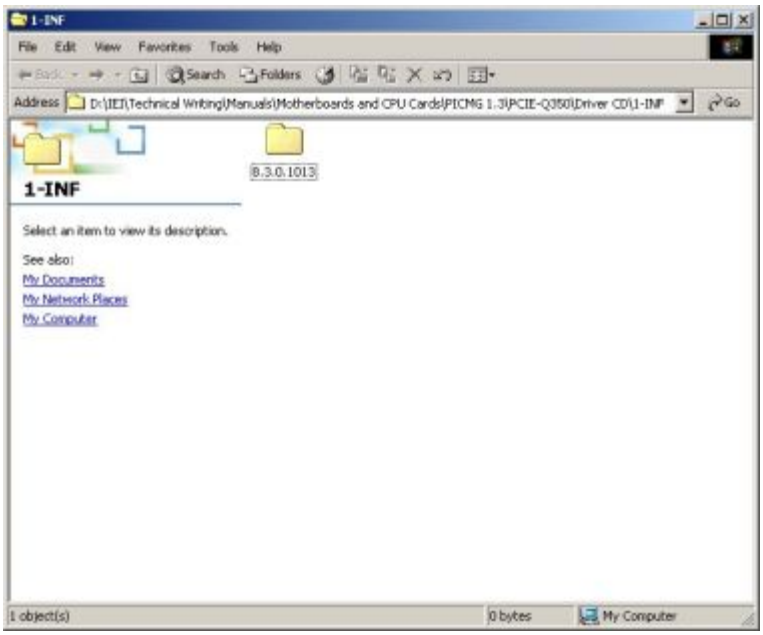

Figure 7-1: Intel® Chipset Driver Directory

Step 3: Click on the directory icon in **Figure 7-1**.

Step 4: The window in **Figure 7-2** appears.

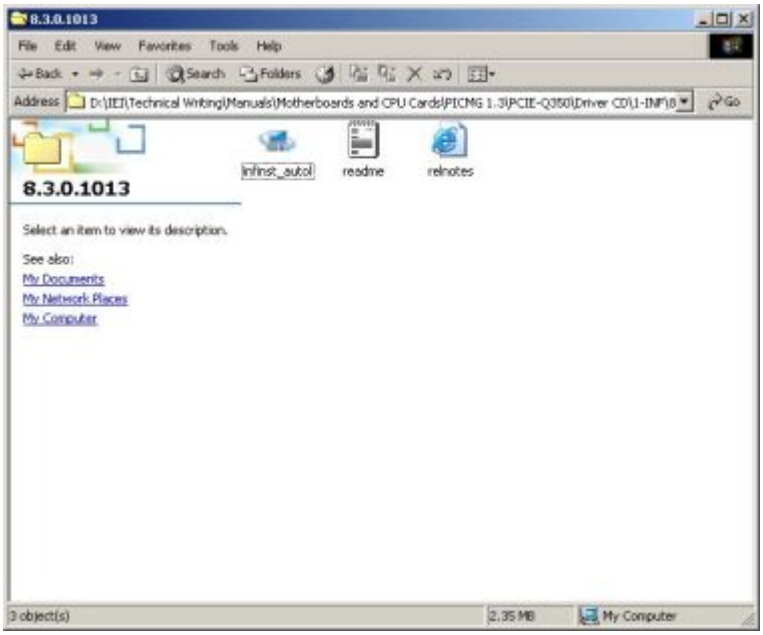

Figure 7-2: Intel® Chipset Driver Setup Icon

Step 5: Click on the **infinst_autol** setup icon in **Figure 7-2**.

Step 6: The **Intel® Package Manager** begins to extract the installation files. See **Figure 7-3**.

Figure 7-3: Intel® Package Manager

Step 7: The **Intel® Setup Welcome** screen. See **Figure 7-4**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows* programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-4: Intel® Setup Welcome Screen

Step 8: Click **NEXT** to continue.

Step 9: The Intel® license agreement in appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 7-5: Intel® Chipset Driver License Agreement

Step 10: Accept the terms and conditions by clicking **YES**.

Step 11: The **Readme** file in **Figure 7-6** appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.3.0.1013
* Target Chipset#: Q33/G33/G31/P35
* Date: March 05 2007
****
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-6: Readme File

Step 12: Click **NEXT** to continue.

Step 13: The driver is then installed.

Step 14: When the installation process is complete, the Setup Complete screen appears.

See **Figure 7-7**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
The setup program successfully installed the Intel® Chipset Device Software onto this computer.
Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Figure 7-7: Intel® Chipset Driver Complete Installation Screen

Step 15: To complete the chipset driver installation, click **FINISH**.

7.3 Intel® Graphics Media Accelerator Driver

To install the chipset driver, please follow the steps below:

Step 1: Select the VGA driver from the driver CD menu.

Step 2: A new window opens. See **Figure 7-8**.

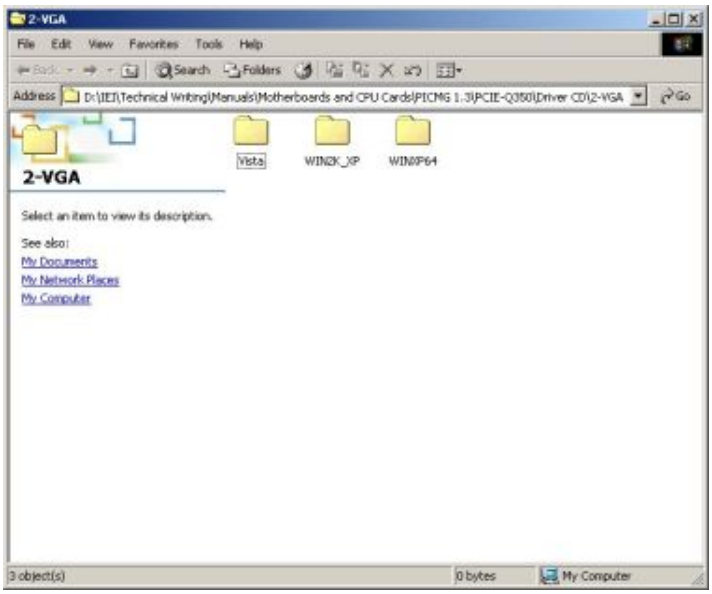

Figure 7-8: Select the Operating System

Step 3: Select the operating system from those shown in **Figure 7-8**.

Step 4: A new window appears. See **Figure 7-9**.

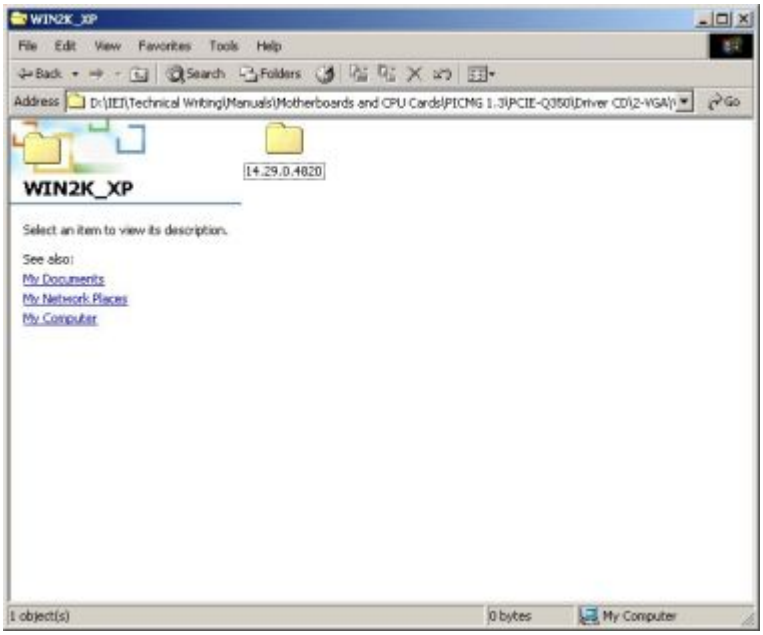

Figure 7-9: Intel® Driver Directory

Step 5: Click the directory icon in **Figure 7-9**.

Step 6: A new window appears. See **Figure 7-10**.

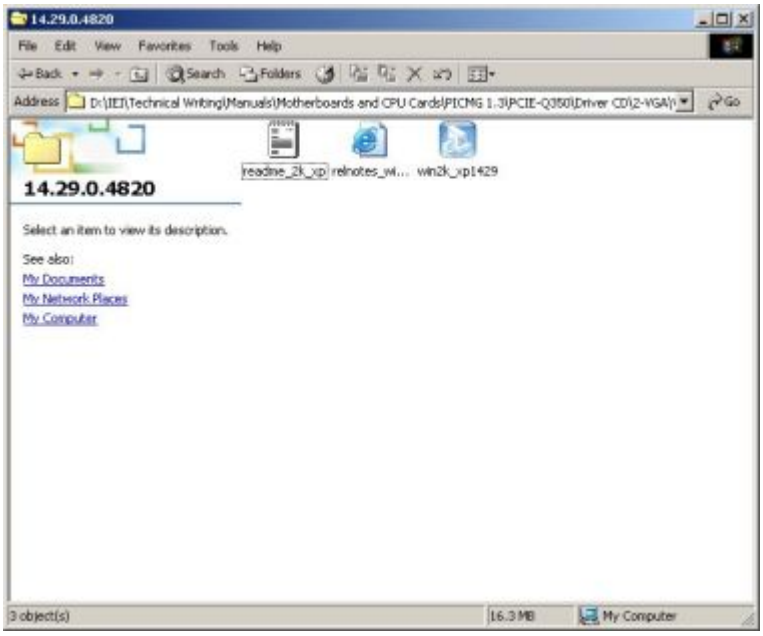

Figure 7-10: Intel® VGA Driver Setup Icon

Step 7: Click on the VGA driver installation icon in See **Figure 7-10**.

Step 8: The Readme information file shown in **Figure 7-11** appears.

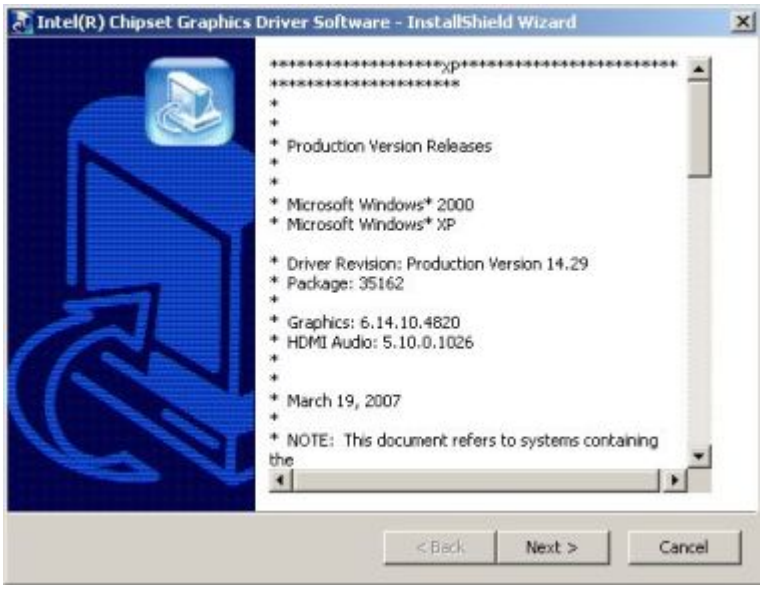

Figure 7-11: GMA Driver Readme File

Step 9: Click **NEXT** to extract the GMA driver files. See **Figure 7-12**.

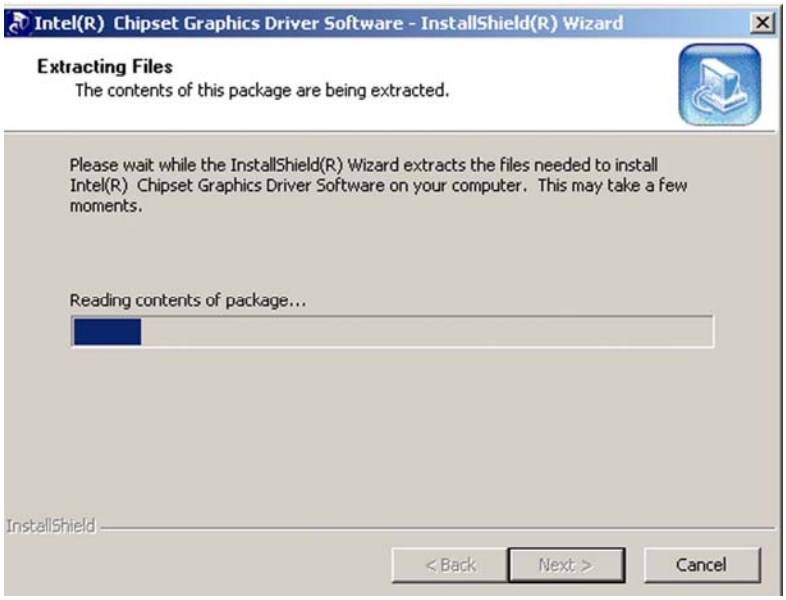
Intel(R) Chipset Graphics Driver Software - InstallShield(R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

Figure 7-12: GMA Driver File Extraction

Step 10: The welcome screen shown in **Figure 7-13** appears.

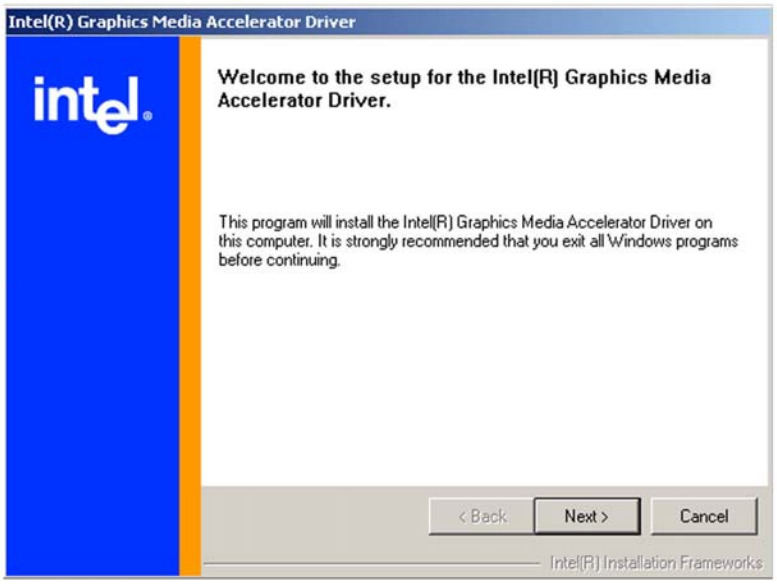
Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-13: GMA Driver Installation Welcome Screen

Step 11: To continue the installation process, click **NEXT**.

Step 12: The license agreement in **Figure 7-14** appears.

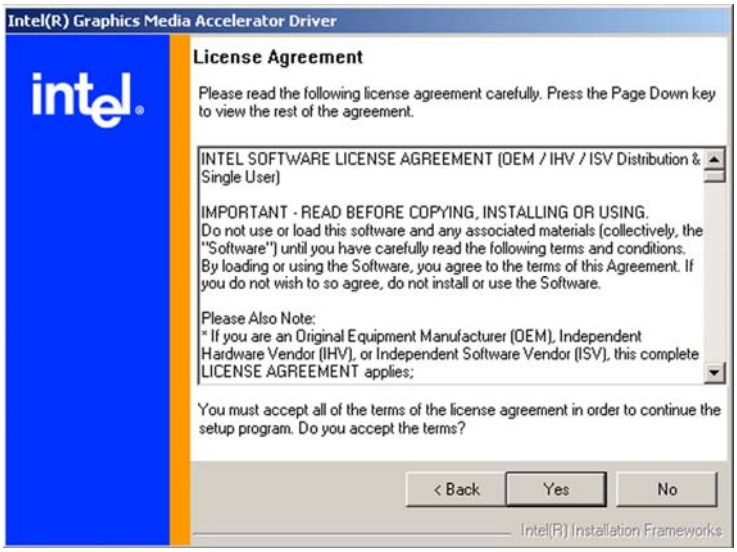
Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-14: GMA Driver License Agreement

Step 13: Click the **YES** in **Figure 7-14** to continue.

Step 14: The installation notice shown in **Figure 7-15** appears.

Figure 7-15: GMA Driver Installing Notice

Step 15: A confirmation screen shown in **Figure 7-16** appears.

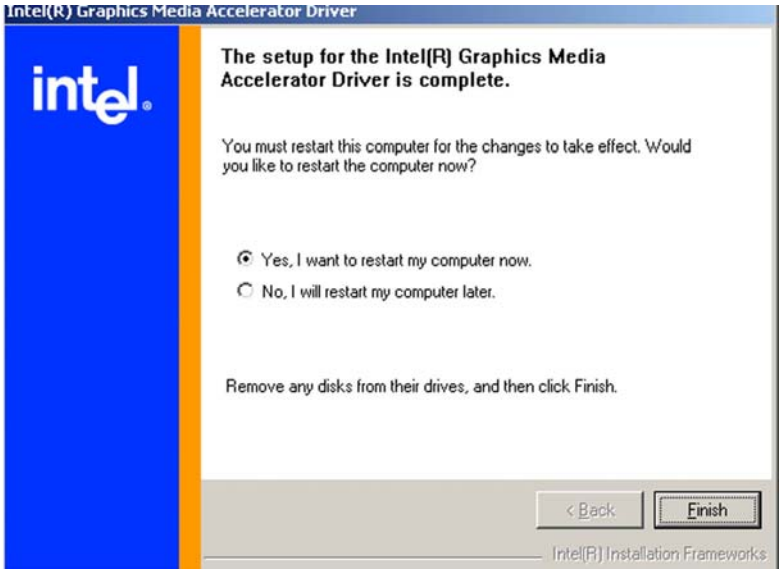
Intel(R) Graphics Media Accelerator Driver
intel
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-16: GMA Driver Installation Complete

Step 16: After selecting when to restart the computer in **Figure 7-16**, click **FINISH**.

7.4 Intel® 82566 Gigabit LAN Connect Device Driver

To install the Intel® 82566 Gigabit LAN connect device driver, please follow the steps below.

Step 1: Select **LAN** from the driver CD menu.

Step 2: The window in **Figure 7-17** appears.

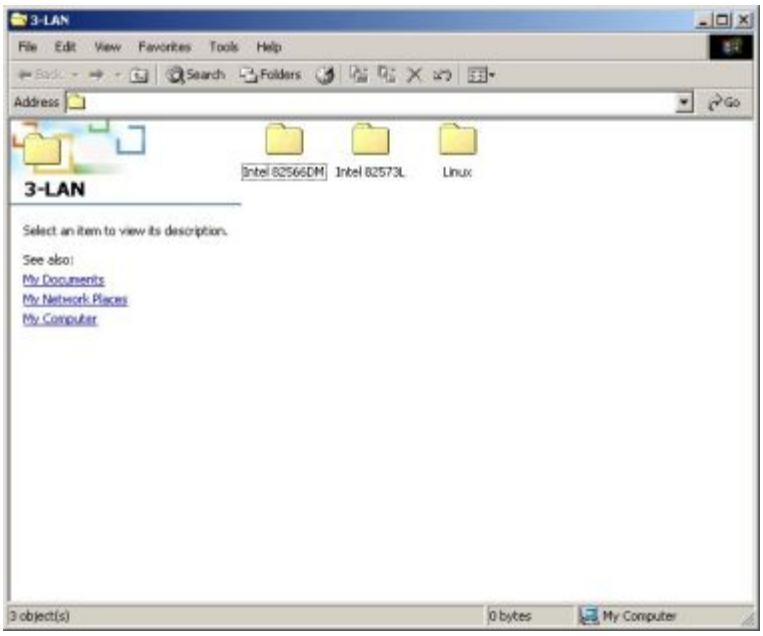

Figure 7-17: Intel® 82566 Driver Directory Icon

Step 3: Click on the **Intel® 82566DM, MM** directory icon in **Figure 7-17**.

Step 4: The window in **Figure 7-18** appears.

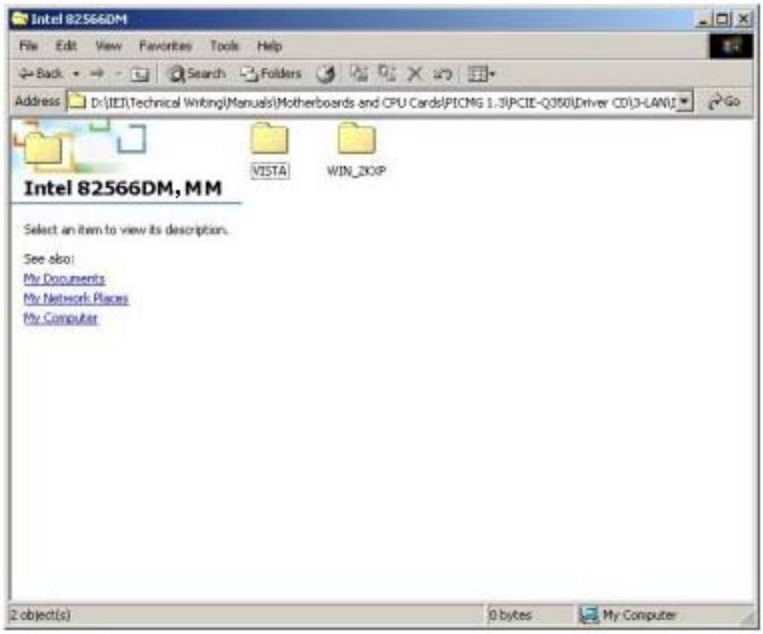

Figure 7-18: Intel® 82566 Operating System

Step 5: Select the Operating System in **Figure 7-18**.

Step 6: The window in **Figure 7-19**appears.

Step 7: In **Figure 7-19** select the operating system type installed on the system.

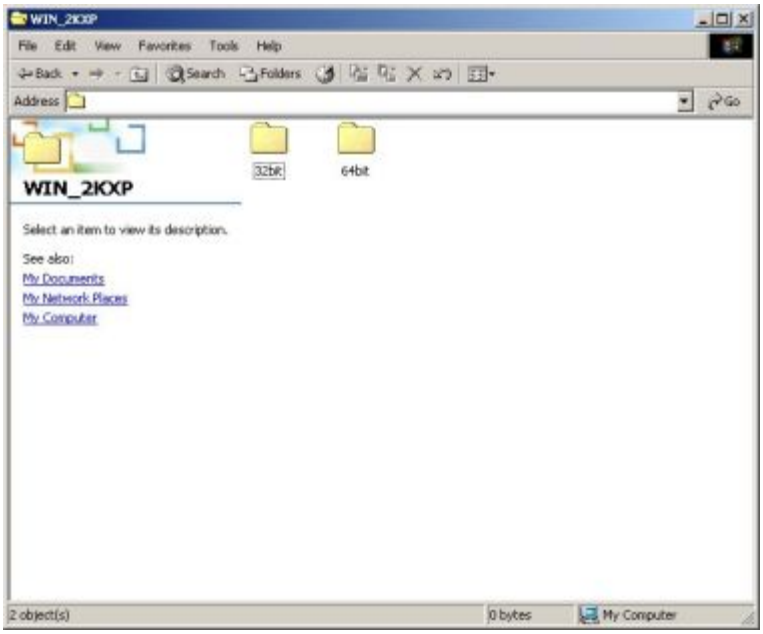

Figure 7-19: Select Operating System Type

Step 8: The window in **Figure 7-20** appears.

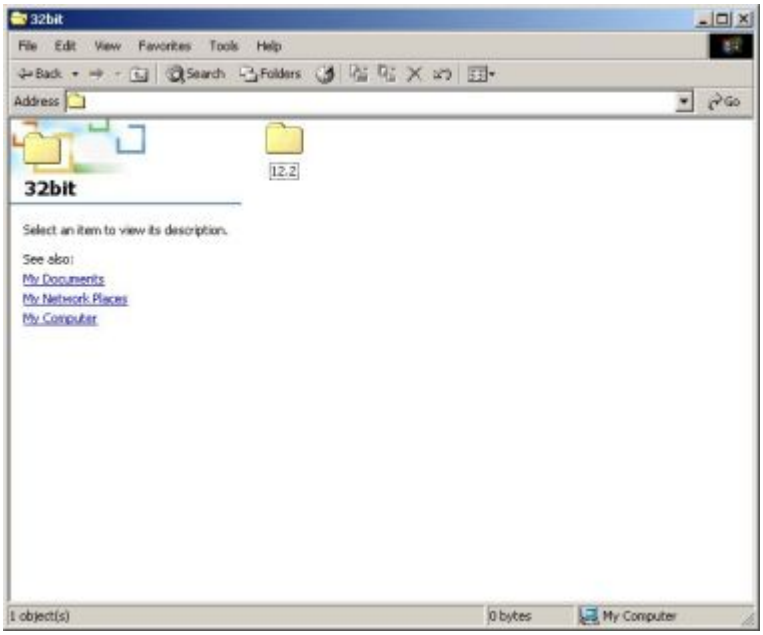

Figure 7-20: Driver Directory

Step 9: Click on the directory icon in **Figure 7-20**.

Step 10: A window containing the Intel® 82566 driver startup icon appears. See **Figure 7-21**.

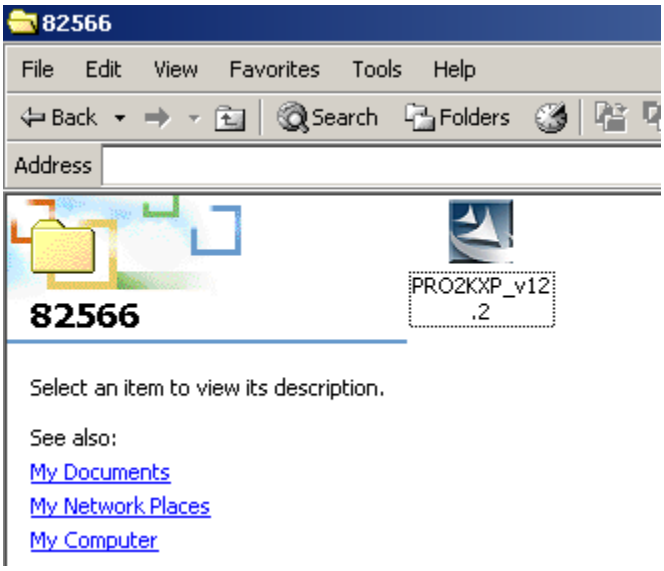

Figure 7-21: Intel® 82566 Device Driver Startup Icon

Step 11: Double click the Intel® 82566 driver startup icon in **Figure 7-21**.

Step 12: The driver begins to extract the installation files.

Step 13: The **Welcome** screen in **Figure 7-22** appears next.

Step 14: Click **NEXT** to continue.

Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for
Intel(R) PRO Network Connections
intel
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

Figure 7-22: Intel® 82566 Welcome Screen

Step 15: The license agreement in **Figure 7-23** appears.

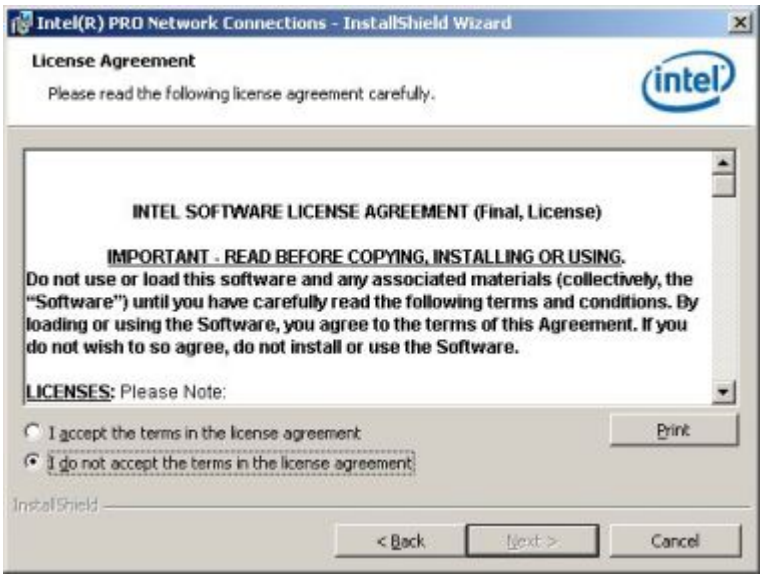
Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
intel
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 7-23: Intel® 82566 Driver License Agreement

Step 16: Accept the conditions of the license agreement and click **NEXT** to continue.

Step 17: The **Setup Options** screen in **Figure 7-24** appears next.

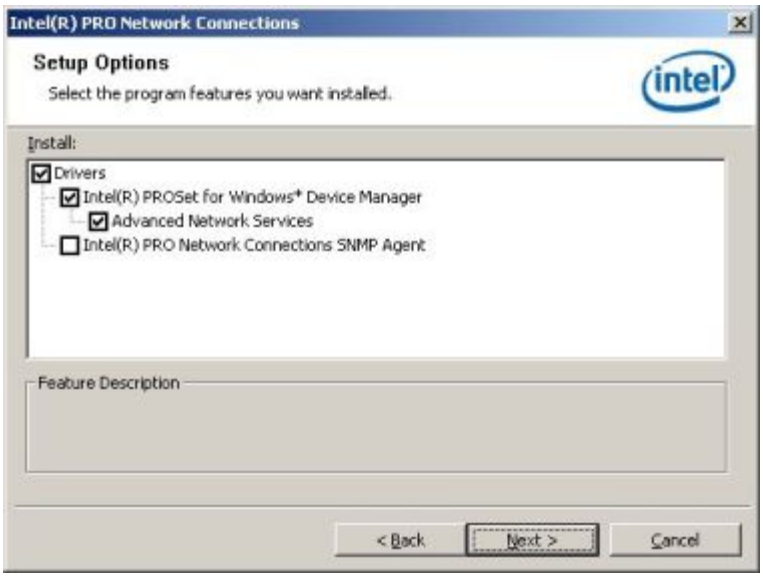

Figure 7-24: Intel® 82566 Driver Setup Options

Step 18: Select the required installation configuration in **Figure 7-24** and click **NEXT** to continue.

Step 19: The **Ready to Install the Program** window in **Figure 7-25** appears.

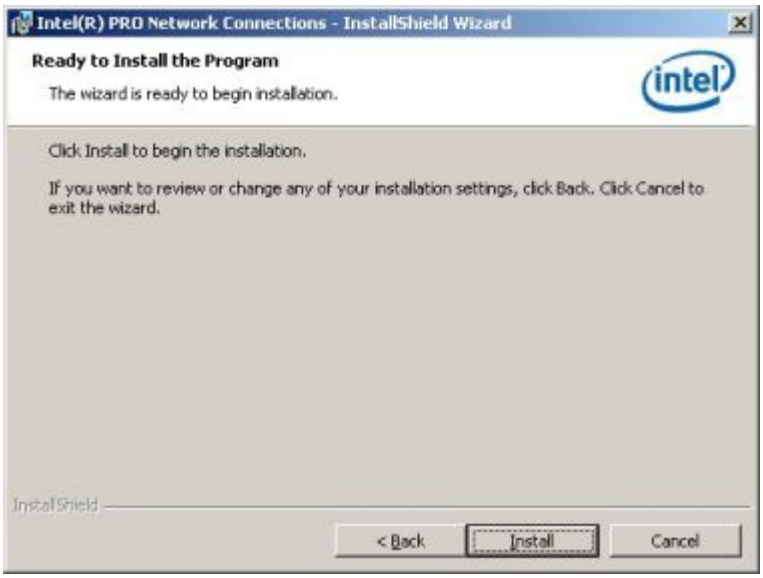
Intel(R) PRO Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Figure 7-25: Intel® 82566 Driver Installation Ready Window

Step 20: Click **INSTALL** in **Figure 7-25**.

Step 21: The program starts to install the driver. The window in appears.

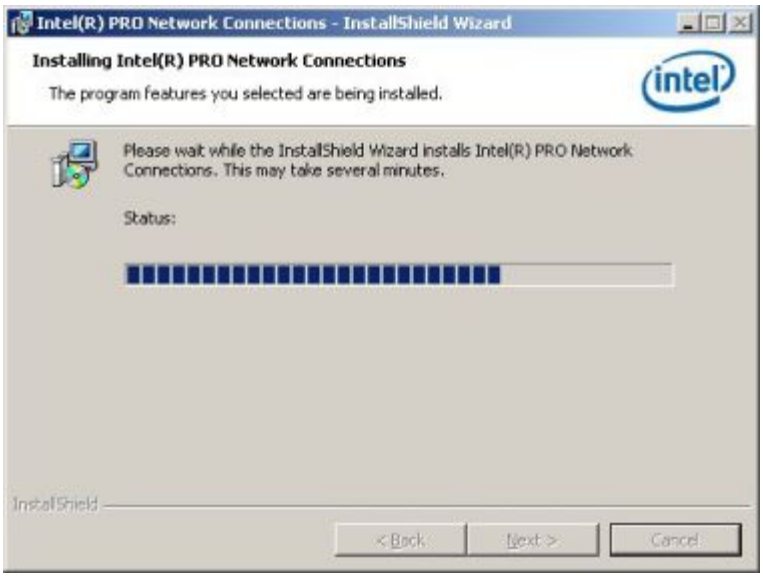
Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Intel(R) PRO Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

Figure 7-26: Intel® 82566 Driver Installation Progress

Step 22: When the installation is finished. Click **FINISH** in the termination screen.

7.5 Intel® 82573 PCI Express Gigabit Ethernet Controller Driver

To install the Intel® 82573 PCIe GbE controller, please follow the steps below.

Step 1: Select **LAN** from the driver CD menu.

Step 2: The window in **Figure 7-27** appears.

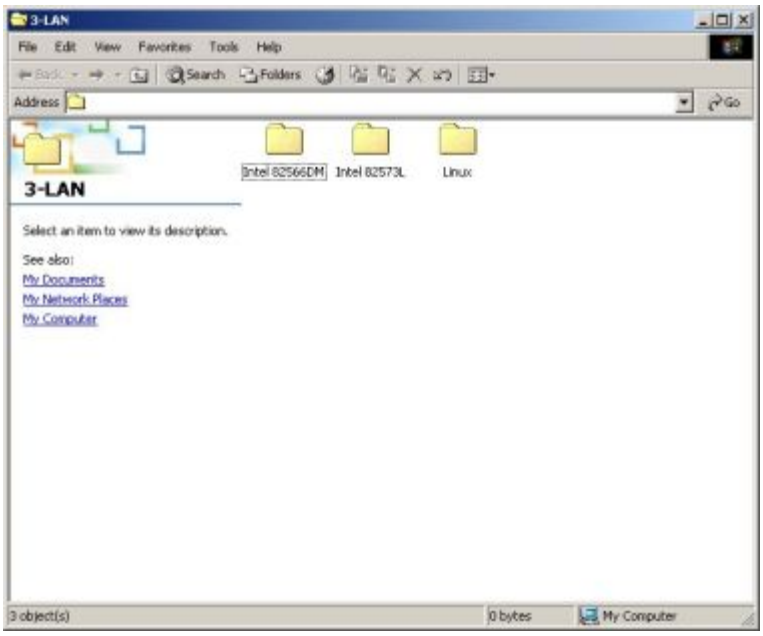

Figure 7-27: Intel® 82573 Driver Directory Icon

Step 3: Click on the **Intel® 82573L** directory icon in **Figure 7-27**.

Step 4: The window in **Figure 7-28** appears.

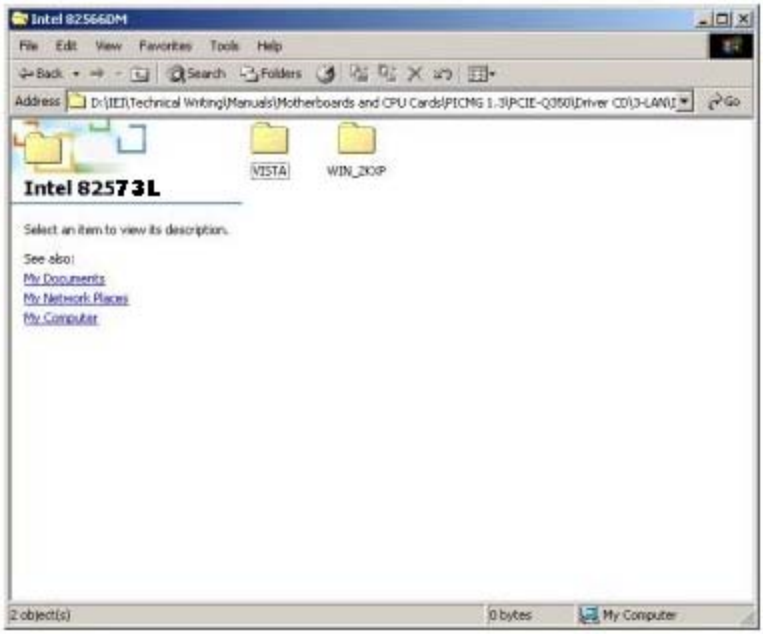

Figure 7-28: Intel® 82573 Operating System

Step 5: Select the Operating System in **Figure 7-28**.

Step 6: The window in **Figure 7-29** appears.

Step 7: In **Figure 7-29** select the operating system type installed on the system.

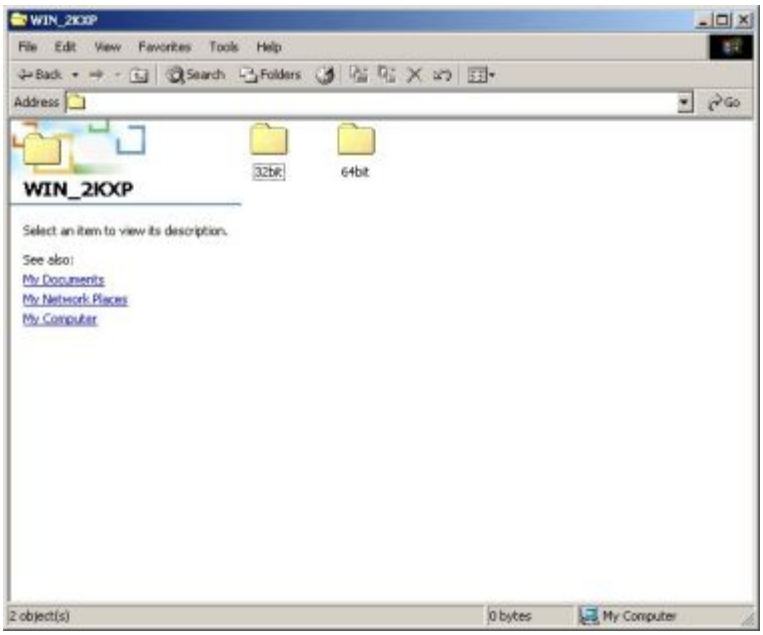

Figure 7-29: Select Operating System Type

Step 8: The window in **Figure 7-30** appears.

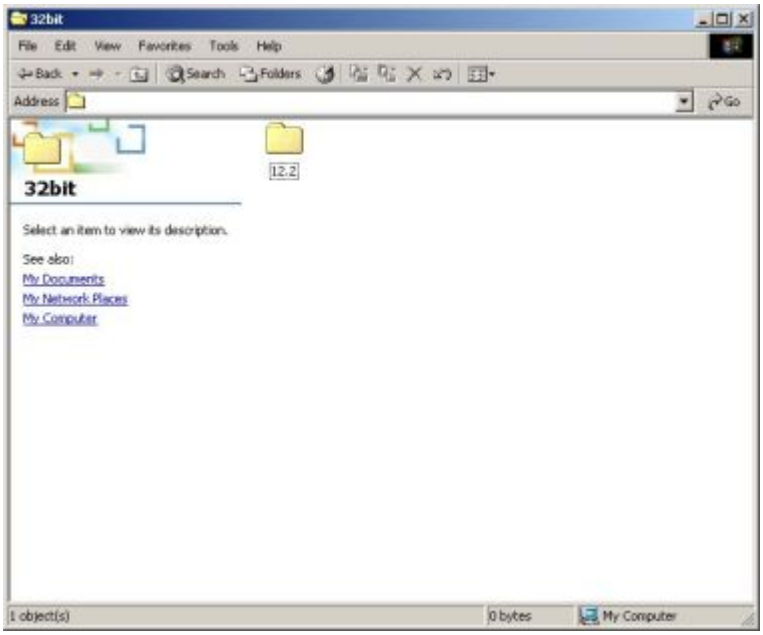

Figure 7-30: Driver Directory

Step 9: Click on the directory icon in **Figure 7-20**.

Step 10: A window containing the Intel® 82573 driver startup icon appears. See **Figure 7-30**.

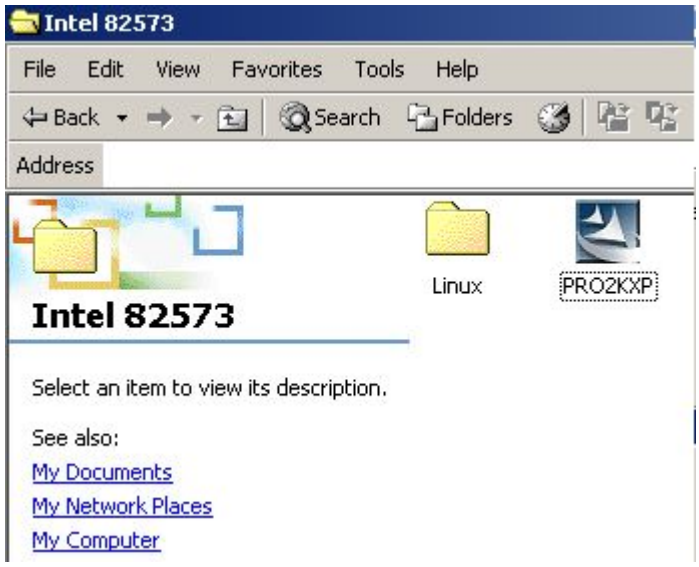

Figure 7-31: Intel® 82573 Driver Startup Icon

Step 11: Click the startup icon in **Figure 7-31**.

Step 12: The **License Agreement** for the Intel® 82573 appears. See **Figure 7-32**.

DriverInstaller - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

Figure 7-32: Intel® 82573 License Agreement

Step 13: Accept the license terms and agreements in and click **NEXT** to continue.

Step 14: Next, select the directory in which the files must be saved. See **Figure 7-33**.

DriverInstaller - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
c:\Intel11.1
Change...
InstallShield
< Back
Next >
Cancel

Figure 7-33: Intel® 82573 File Location Select

Step 15: Click **NEXT** to continue.

Step 16: The driver begins to extract the installation files. See **Figure 7-34**.

DriverInstaller - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install DriverInstaller on your computer. This may take a few moments.
Extracting Autorun.exe...
InstallShield
< Back
Next >
Cancel

Figure 7-34: Intel® 82573 Installation Files Extraction

Step 17: The Intel® PRO Network Connections window appears. See **Figure 7-35**.

Figure 7-35: Intel® PRO Network Connections window

Step 18: Click **INSTALL DRIVERS** in **Figure 7-35**.

Step 19: The **Intel® PRO Network Connections Welcome** screen in **Figure 7-36** appears.

Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) PRO Network Connections
intel
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

Figure 7-36: Intel® PRO Network Connections Welcome

Step 20: Click **NEXT** to continue.

Step 21: A new **License Agreement** appears. See **Figure 7-37**.

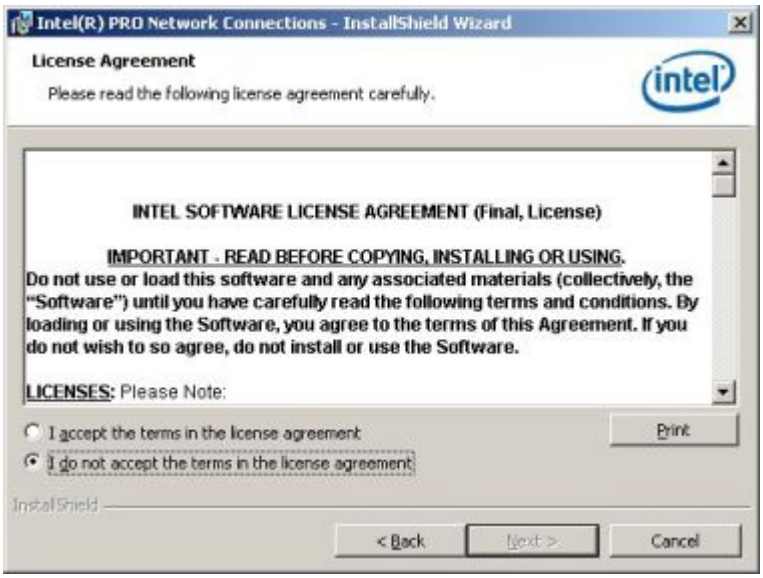
Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
intel
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 7-37: License Agreement

Step 22: Accept the terms and conditions in **Figure 7-37** and click **NEXT** to continue.

Step 23: The **Setup Type** window in **Figure 7-38** appears.

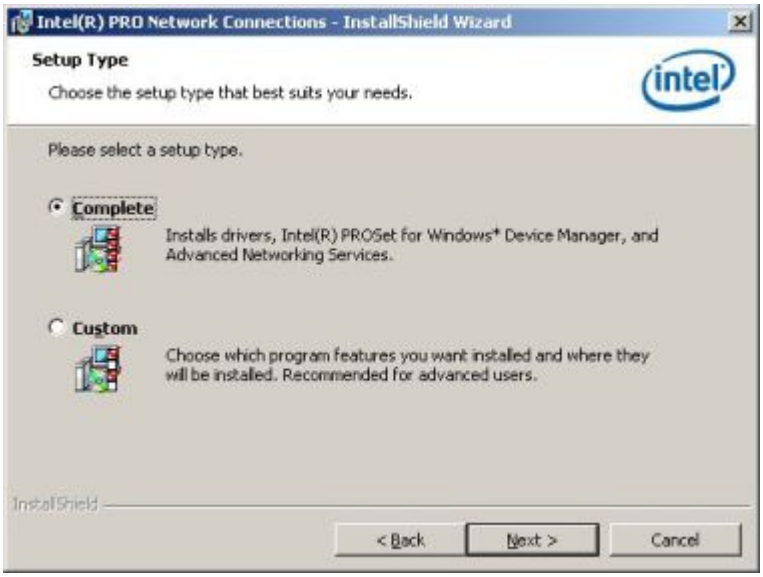
Intel(R) PRO Network Connections - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
intel
Please select a setup type.
Complete
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

Figure 7-38: Setup Type

Step 24: Select the setup type in **Figure 7-38** and click **NEXT** to continue.

Step 25: The drivers are installed. See **Figure 7-39**.

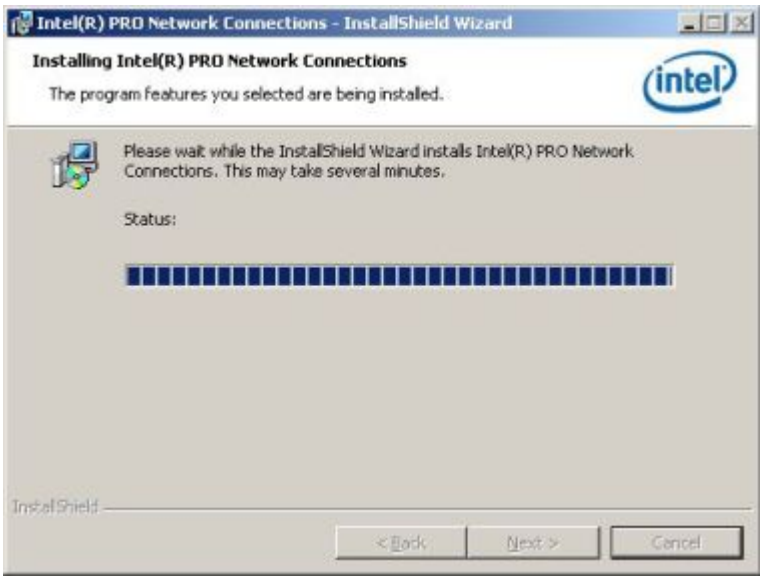
Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
intel
Please wait while the InstallShield Wizard installs Intel(R) PRO Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

Figure 7-39: Intel® 82573 Driver Installation Progress

Step 26: When the driver is installed. Click **FINISH** in the termination screen.

7.6 Realtek HD Audio Driver (ALC883) Installation

To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

NOTE:

This driver only needs to be installed if an external audio kit with a RealTek ALC883 codec is installed.

7.6.1 BIOS Setup

Step 1: Enter the BIOS setup. To do this, reboot the system and press **DEL** during POST.

Step 2: Go to the Southbridge Configuration menu. Enable the High Definition Audio controller.

Step 3: Press **F10** to save the changes and exit the BIOS setup. The system reboots.

7.6.2 Driver Installation

To install the audio driver please follow the steps below.

Step 1: Select **AUDIO** from the driver CD menu.

Step 2: A new window opens (**Figure 7-40**).

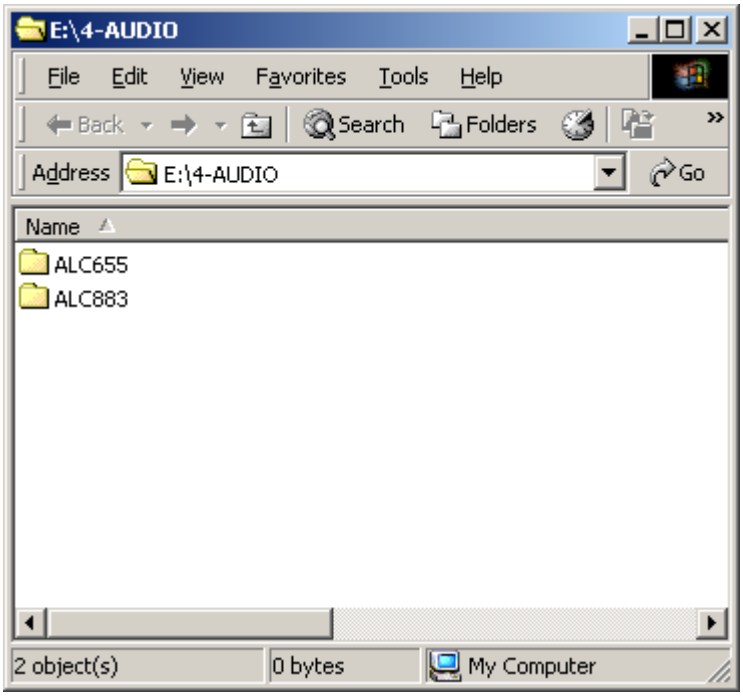

Figure 7-40: Select the Audio CODEC

Step 3: Double-click the ALC883 folder.

Step 4: Double-click the appropriate operating system folder (**Figure 7-41**).

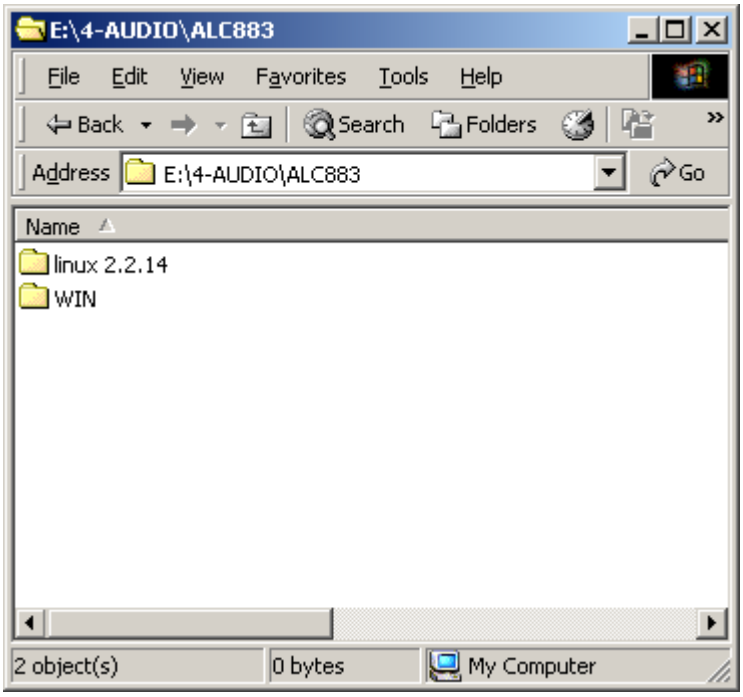

Figure 7-41: Select the OS

Step 5: Double-click the appropriate operating system version folder (**Figure 7-42**).

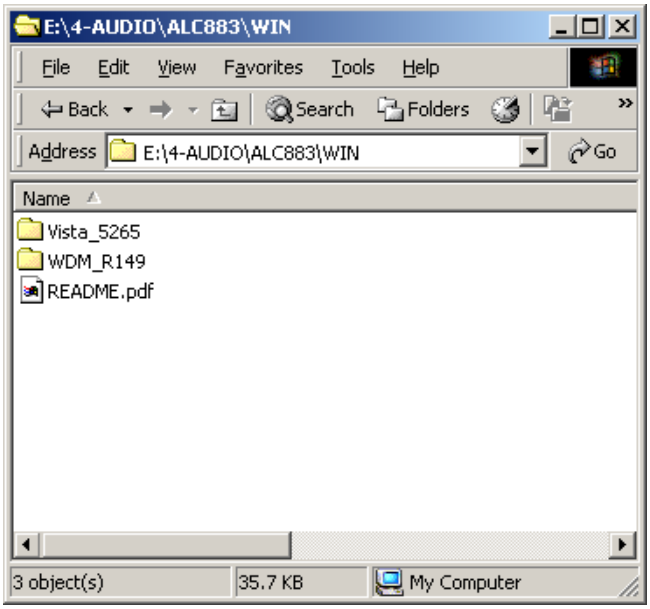

Figure 7-42: Select the OS Version

Step 6: Double-click the **Setup.exe** program icon in **Figure 7-43**.

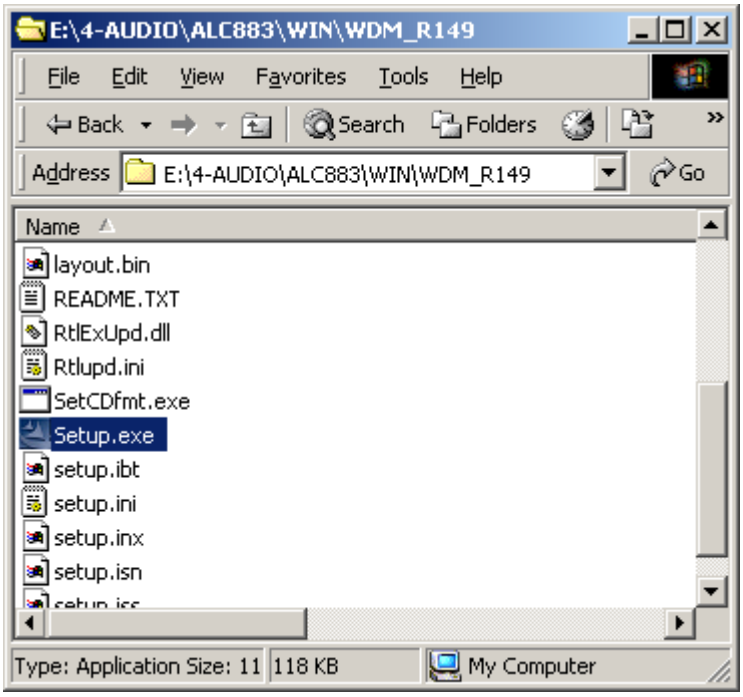

Figure 7-43: Locate the Setup Program Icon

Step 7: The **InstallShield Wizard** starts (**Figure 7-44**).

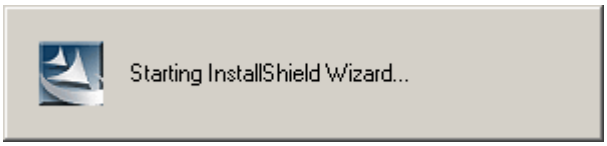

Figure 7-44: The InstallShield Wizard Starts

Step 8: The **InstallShield Wizard** is prepared to guide the user through the rest of the process (**Figure 7-45**).

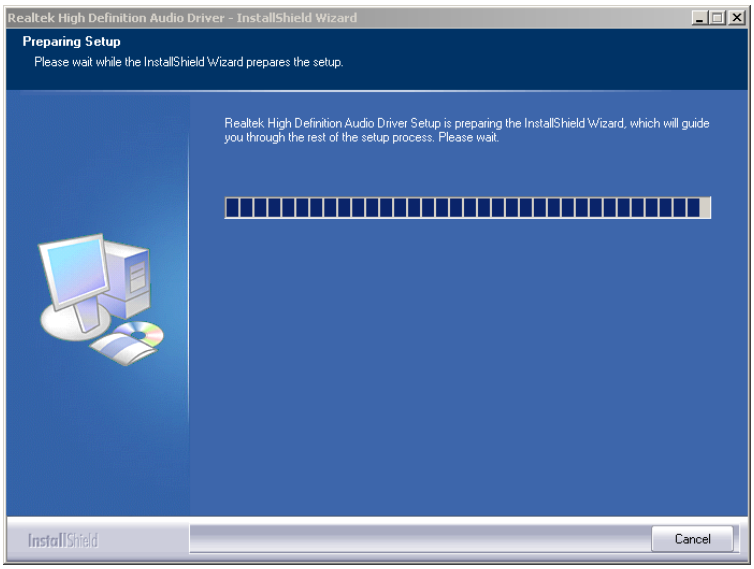
Realtek High Definition Audio Driver - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Realtek High Definition Audio Driver Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-45: Preparing Setup Screen

Step 9: Once initialized, the **InstallShield Wizard** welcome screen appears (**Figure 7-46**).

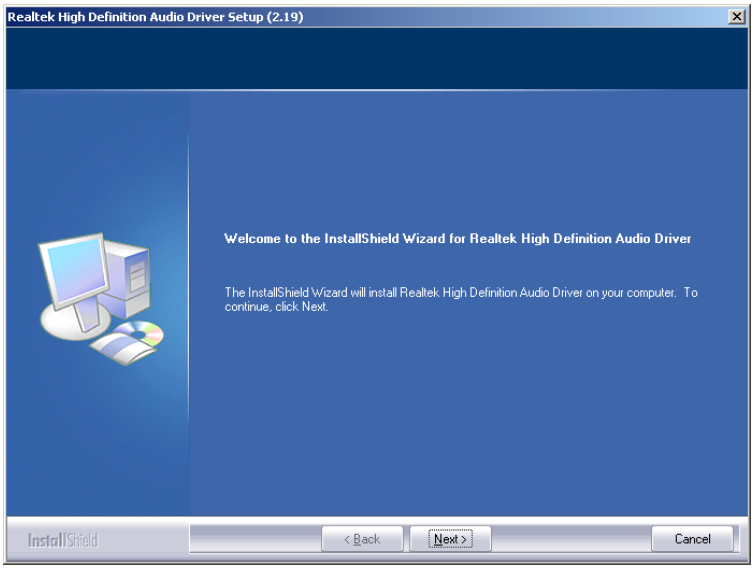
Realtek High Definition Audio Driver Setup (2.19)
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Figure 7-46: InstallShield Wizard Welcome Screen

Step 10: Click **NEXT** to continue the installation.

Step 11: InstallShield starts to install the new software as shown in **Figure 7-47**.

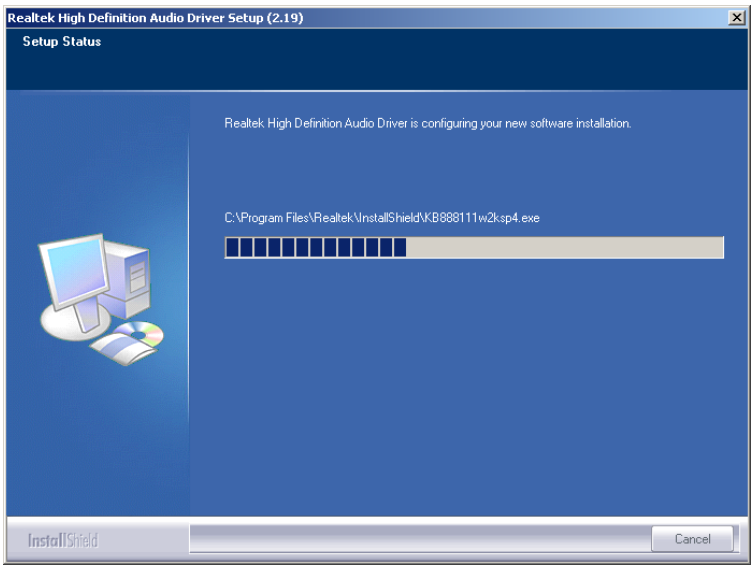
Realtek High Definition Audio Driver Setup (2.19)
Setup Status
Realtek High Definition Audio Driver is configuring your new software installation.
C:\Program Files\Realtek\InstallShield\KB888111w2ksp4.exe
InstallShield
Cancel

Figure 7-47: Audio Driver Software Configuration

Step 12: The Installation Wizard updates the system as shown in **Figure 7-48**.

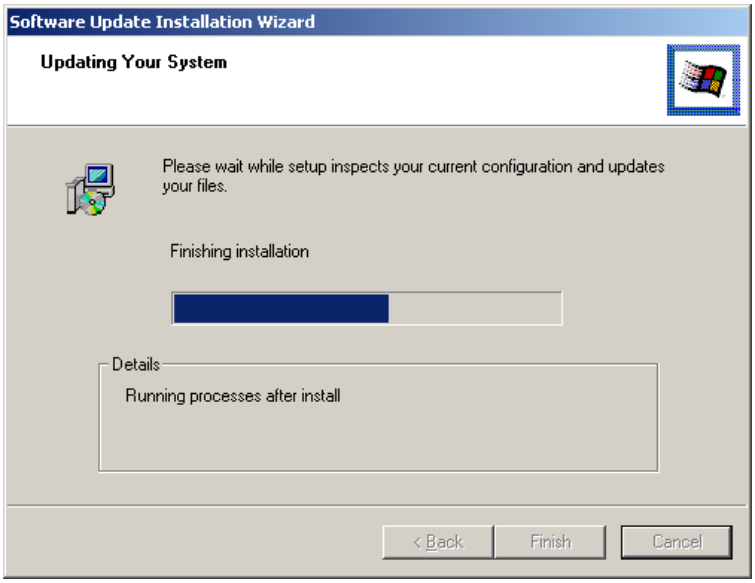

Figure 7-48: Installation Wizard Updates the System

Step 13: After the driver installation process is complete, a confirmation screen appears (**Figure 7-49**).

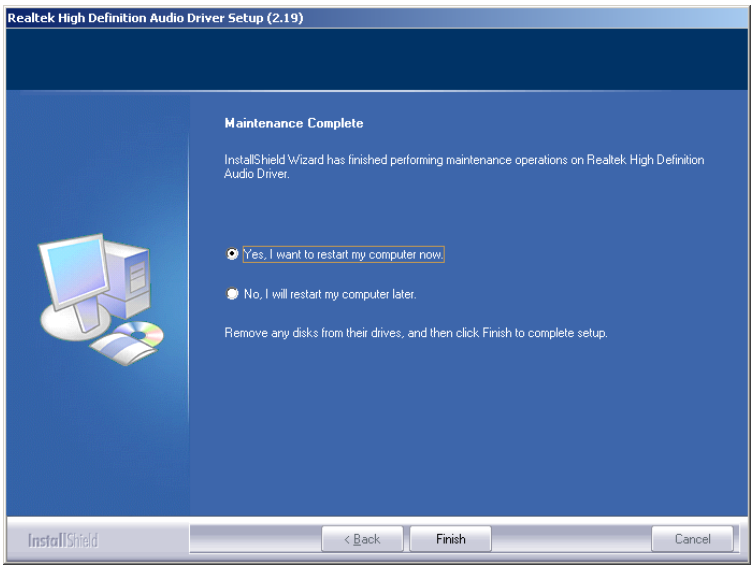
Realtek High Definition Audio Driver Setup (2.19)
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on Realtek High Definition Audio Driver.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Figure 7-49: Restart the Computer

Step 14: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

7.7 Intel® Matrix Storage Manager Driver Installation

To install the Intel® Matrix Storage Manager driver, please follow the steps below:

Step 1: Select **SATA** from the driver CD menu.

Step 2: A new window opens (**Figure 7-50**).

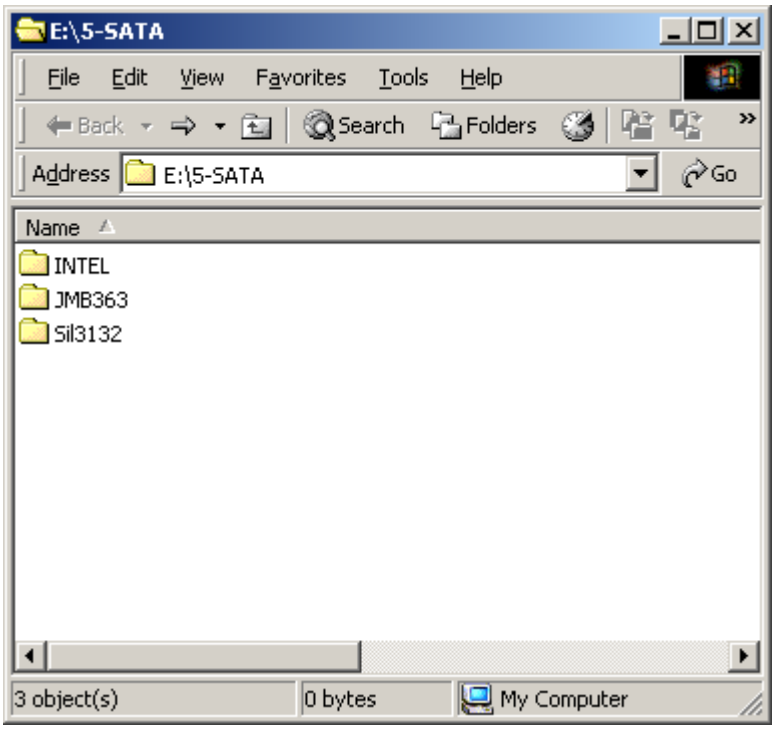

Figure 7-50: SATA RAID Driver Installation Program

Step 3: Double-click the **INTEL®** folder.

Step 4: Double-click the **iata62_cd.exe** program icon in **Figure 7-51**.

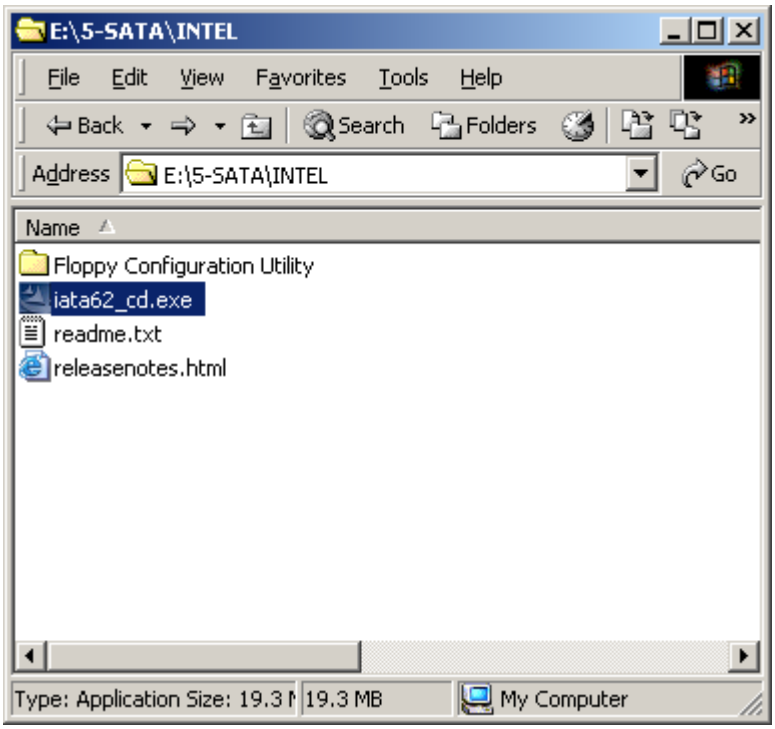

Figure 7-51: SATA RAID Setup Program Icon

Step 5: **Figure 7-52** shows the **InstallShield Wizard** preparing to guide the user through the rest of the process.

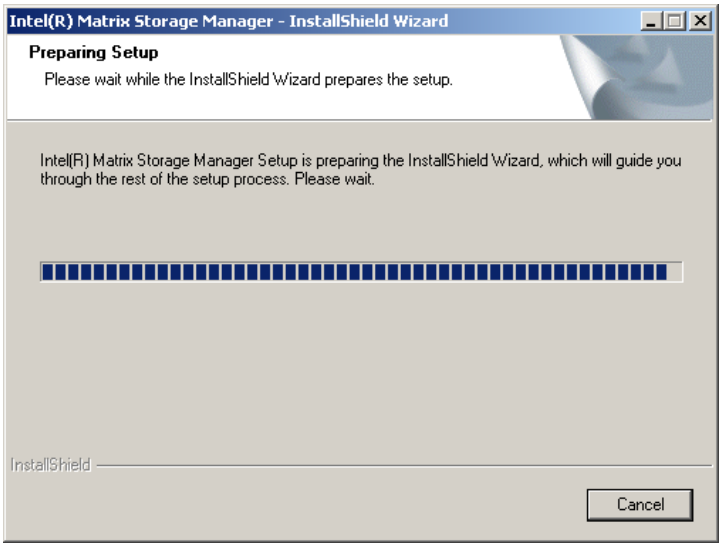
Intel(R) Matrix Storage Manager - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Intel(R) Matrix Storage Manager Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-52: InstallShield Wizard Setup Screen

Step 6: **Figure 7-53** shows the **Matrix Storage Manager** software configuring the installation process.

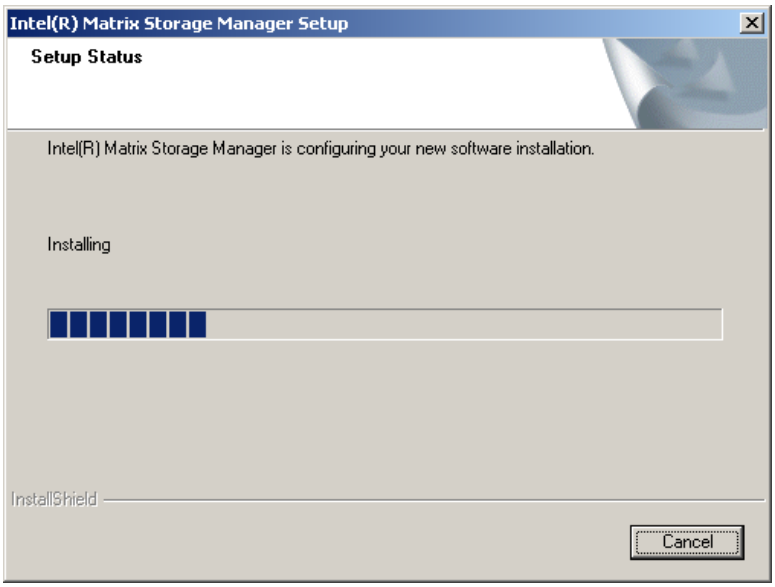

Figure 7-53: Matrix Storage Manager Setup Screen

Step 7: **Figure 7-54** shows the **Matrix Storage Manager** welcome screen.

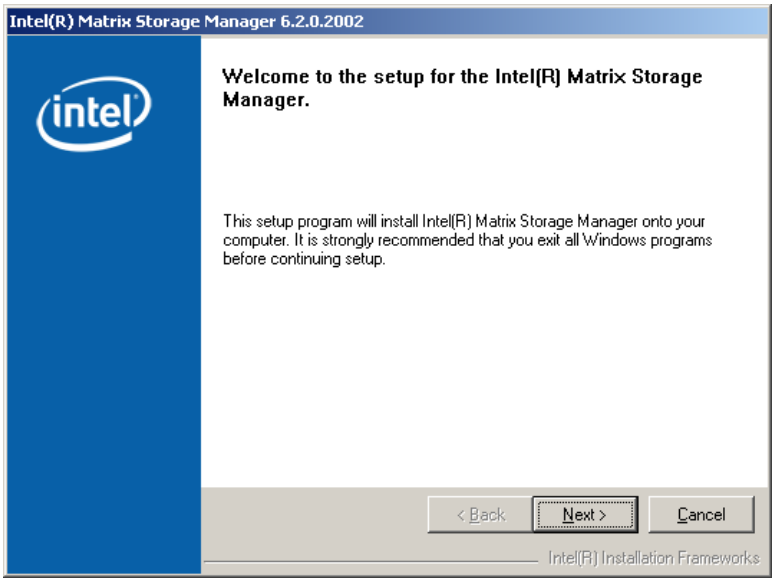
Intel(R) Matrix Storage Manager 6.2.0.2002
Welcome to the setup for the Intel(R) Matrix Storage Manager.
This setup program will install Intel(R) Matrix Storage Manager onto your computer. It is strongly recommended that you exit all Windows programs before continuing setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-54: Matrix Storage Manager Welcome Screen

Step 8: Click **NEXT** and a warning appears (**Figure 7-55**). Read the warning carefully and decide whether or not to continue the installation process.

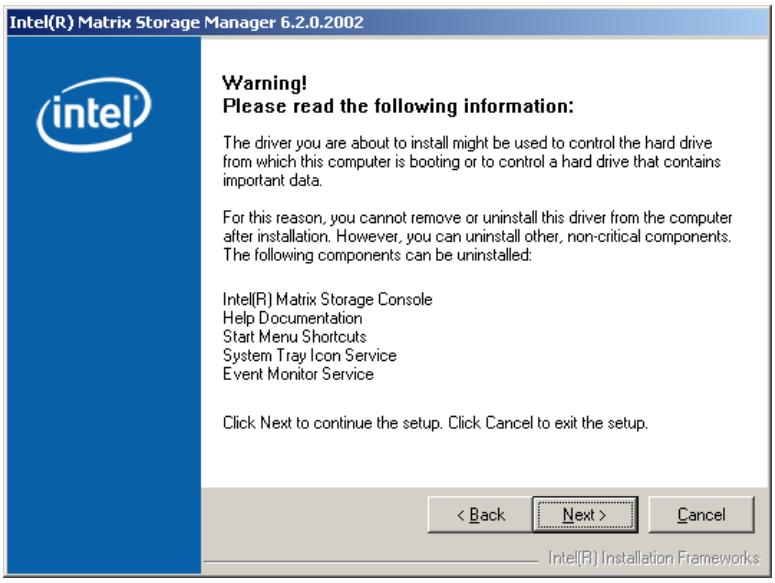
Intel(R) Matrix Storage Manager 6.2.0.2002
Warning!
Please read the following information:
The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains important data.
For this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled:
Intel(R) Matrix Storage Console
Help Documentation
Start Menu Shortcuts
System Tray Icon Service
Event Monitor Service
Click Next to continue the setup. Click Cancel to exit the setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-55: Matrix Storage Manager Warning Screen

Step 9: Click **NEXT** and a license agreement appears (**Figure 7-56**).

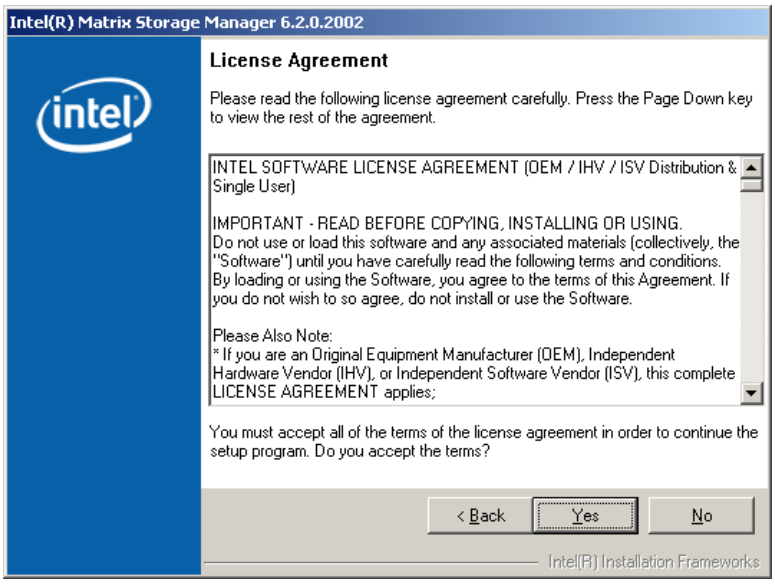
Intel(R) Matrix Storage Manager 6.2.0.2002
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-56: Matrix Storage Manager License Agreement

Step 10: Read the license agreement. To accept the terms and conditions stipulated in the license agreement shown, click **YES** and the Readme information file shown in **Figure 7-57** appears.

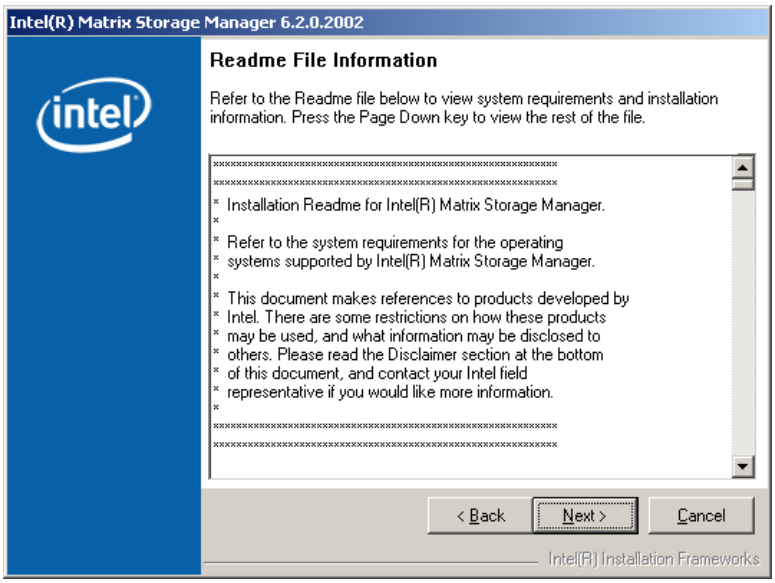
Intel(R) Matrix Storage Manager 6.2.0.2002
Readme File Information
Refer to the Readme file below to view system requirements and installation information. Press the Page Down key to view the rest of the file.
* Installation Readme for Intel(R) Matrix Storage Manager.
* Refer to the system requirements for the operating
* systems supported by Intel(R) Matrix Storage Manager.
* This document makes references to products developed by
* Intel. There are some restrictions on how these products
* may be used, and what information may be disclosed to
* others. Please read the Disclaimer section at the bottom
* of this document, and contact your Intel field
* representative if you would like more information.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-57: Matrix Storage Manager Readme File

Step 11: Read the Readme file information and click **NEXT**.

Step 12: After the driver installation process is complete, a confirmation screen appears (**Figure 7-58**).

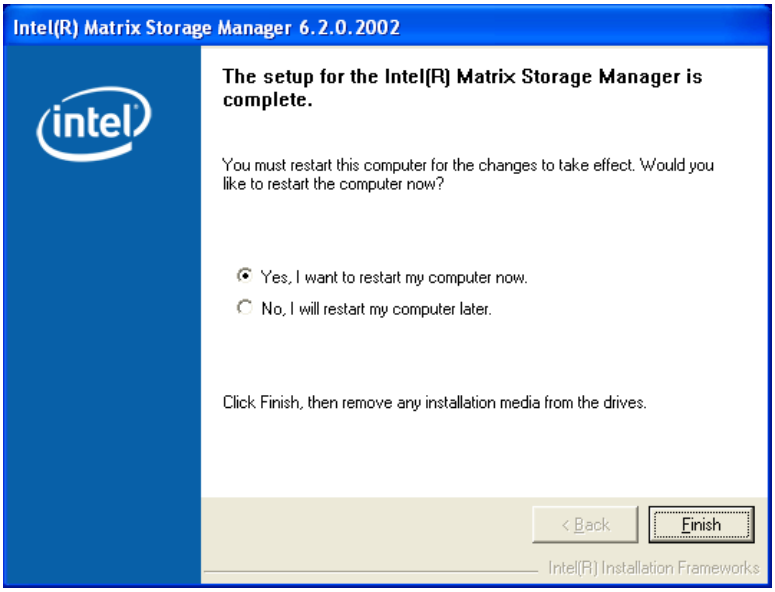
Intel(R) Matrix Storage Manager 6.2.0.2002
The setup for the Intel(R) Matrix Storage Manager is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Click Finish, then remove any installation media from the drives.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-58: Matrix Storage Manager Setup Complete

Step 13: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

7.8 Intel® Active Management Technology Driver Installation

To install the Intel® Active Management Technology (IAMT) driver, please follow the steps below:

Step 1: Select **iAMT and Utilities** from the driver CD menu.

Step 2: The screen in **Figure 7-59** appears.

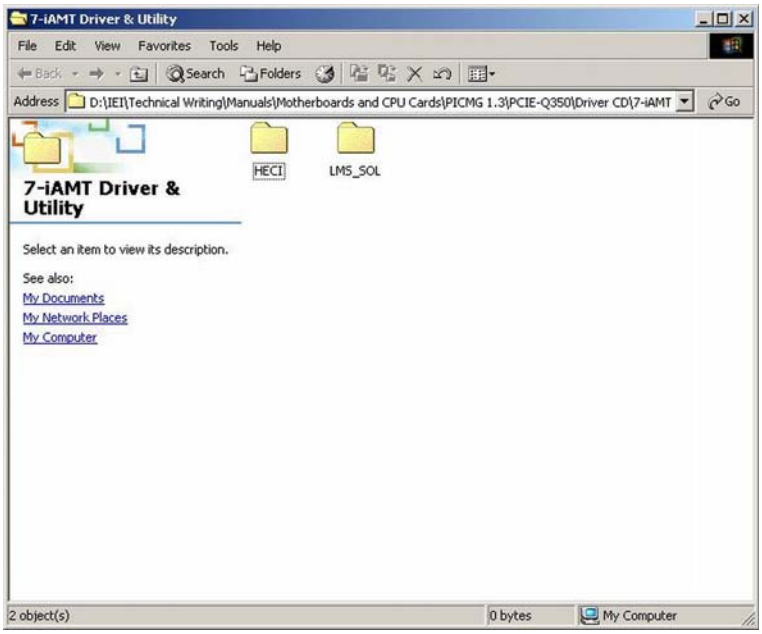

Figure 7-59: IAMT Driver Directory

Step 3: Click on the LMS_SOL directory icon. The window in **Figure 7-60** appears.

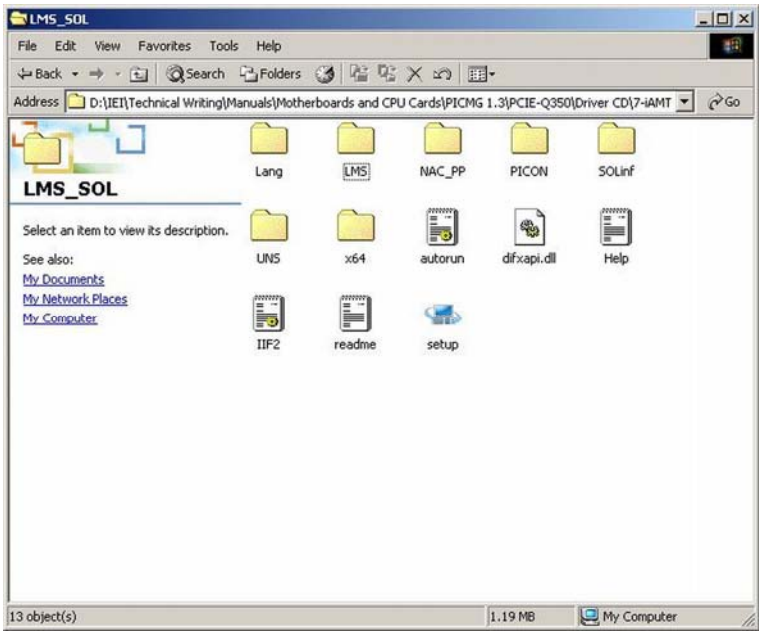

Figure 7-60: IAMT Driver Installation Icon

Step 4: Double click the setup icon in **Figure 7-60**.

Step 5: The window in **Figure 7-61** appears.

Intel® Active Management Technology
Intel® Active Management Technology
intel
Welcome to the Setup Program
This setup program will install Intel® Active Management Technology onto this computer. It is strongly recommended that you exit all programs before continuing.
Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-61: IAMT Welcome Screen

Step 6: Click **NEXT** to continue. The **License Agreement** in **Figure 7-62** appears.

Intel® Active Management Technology
Intel® Active Management Technology
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 7-62: IAMT License Agreement

Step 7: Agree to the terms and conditions in the license agreement by clicking **YES**.

Step 8: The **IAMT Readme** file in **Figure 7-63** appears

Intel® Active Management Technology
Intel® Active Management Technology
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
****
* Copyright 2006, 2007 Intel Corporation
* Intel(R) Active Management Technology Local
Manageability Service
* Serial Over LAN
****
Intel(R) Active Management Technology Local Management
Service Allows applications to access the local
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-63: IAMT Readme File

Step 9: Click **NEXT** to continue.

Step 10: Setup operations are performed. See **Figure 7-64**.

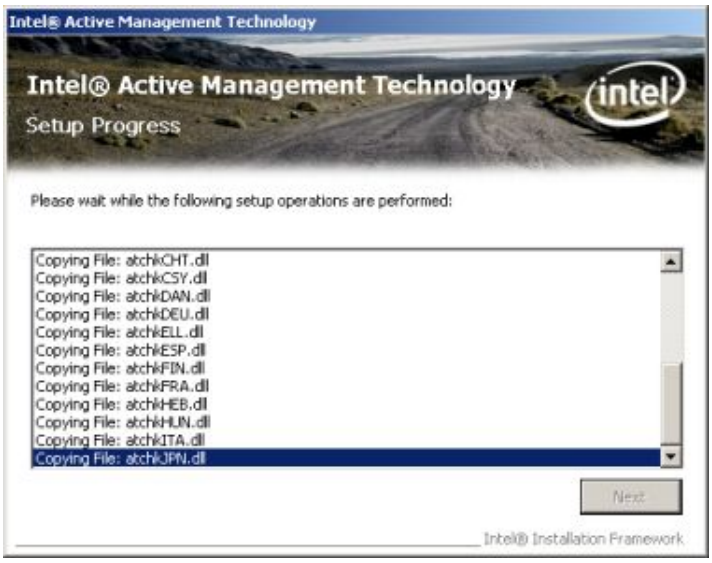

Figure 7-64: IAMT Setup Operations

Step 11: When the Setup Operations in **Figure 7-64** are complete, the window in **Figure 7-65** appears.

Intel® Active Management Technology
Intel® Active Management Technology
Setup Is Complete
intel
The setup program successfully installed Intel® Active Management Technology onto this computer. Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Figure 7-65: Completed Installation

Step 12: Click **FINISH** to complete the IAMT installation.

Step 13: Go back to **iAMT and Utilities** directory (**Figure 7-66**).

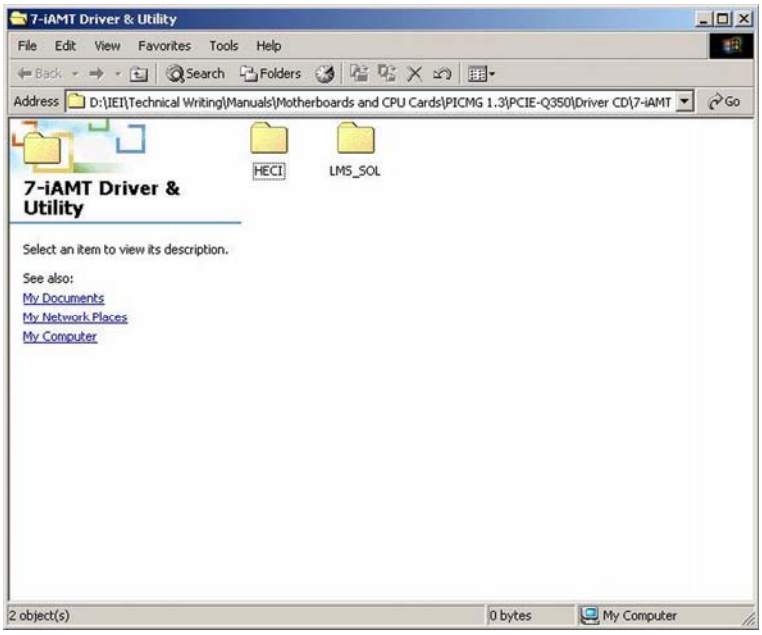

Figure 7-66: IAMT Driver Directory

Step 14: Click on the HECI directory icon. The window in **Figure 7-67** appears.

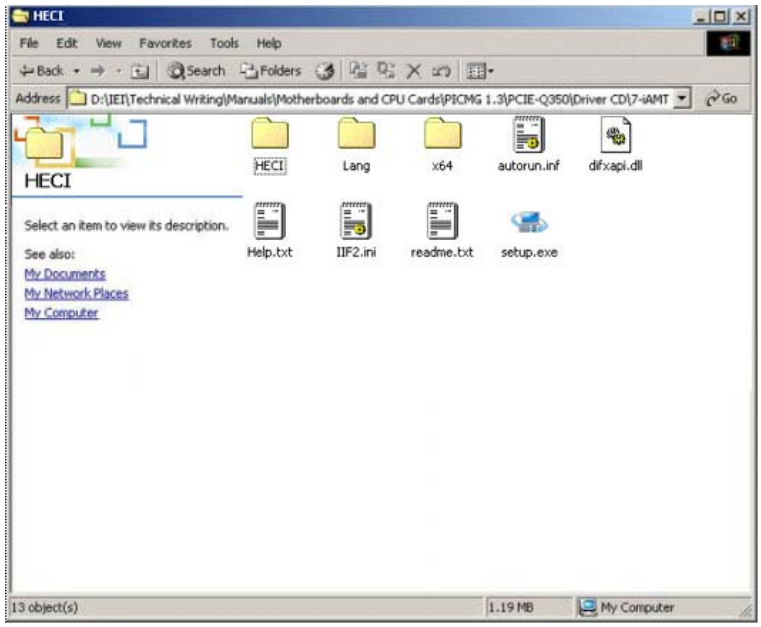

Figure 7-67: HECI Driver Installation Icon

Step 15: Double click the setup icon in **Figure 7-67**.

Step 16: Follow the step-by-step installation process to install the HECI driver.

Chapter

8

Intel® AMT Configuration

8.1 Intel® AMT Setup Procedure

The AFL-9652 series is featured with the Intel® Active Management Technology (AMT) 2.5. To enable the Intel® AMT function, follow the steps below.

Step 1: Make sure the DIMM**1** socket is installed with one DDR2 SO-DIMM.

Step 2: Connect an Ethernet cable to the RJ-45 connector labeled **LAN2_USB2**.

Step 3: The AMI BIOS options regarding the Intel® ME or Intel® AMT must be enabled, including:

- Intel® AMT Configuration [Advanced] (see **Section 6.3.5**)
- ME Subsystem Configuration [Chipset] (see **Section 6.3.5.1**)

Step 4: Configure the Intel® Management Engine BIOS extension (MEBx) (see **Section 8.2** below)

Step 5: Properly install the Intel® AMT drives. Make sure to install both HECI and LMS_SOL drivers from the iAMT Driver & Utility directory in the driver CD (see **Section 7.8**).

Step 6: The following dialog window is displayed after the OS is loaded to show the Intel® AMT status on the AFL-9652 series is enabled.

Intel® Active Management Technology Status
Intel® Active Management Technology (Intel® AMT) status on this computer is: enabled.
To enable or disable Intel® AMT, contact your authorized system administrator.
For more information about Intel® AMT, click here.
OK

Figure 8-1: Intel® Active Management Technology Status Dialog

8.2 Intel® Management Engine BIOS Extension

This section describes the essential steps for using the Intel® Management Engine BIOS extension (MEBx).

Step 1: A screen prompts the user to press <Ctrl+P> after a single beep during boot-up process. To get into the Intel® MEBx settings, press <**Ctrl+P**>.

Step 2: Enter the Intel® current ME password as it requires (**Figure 8-2**). Enter the IEI factory ME password: **Abab12!@** (the Intel® default password is **admin**).

NOTE:

The default Intel® ME password is **admin**. The IEI has reset the password to **Abab12!@** in quality control process. After clearing the CMOS, the ME password bound to Intel® default password (admin). Use Intel® default password to enter the Intel® ME BIOS and change the password (refer to **Step 3** below) to be able to configure the Intel® AMT and ME options.

Figure 8-2: Intel® Current ME Password

Step 3: To change the password, select **Change Intel® ME Password**. Enter a new password following the strong password rule (containing at least one upper case letter, one lower case letter, one digit and one special character, and be at least eight characters). (**Figure 8-3**)

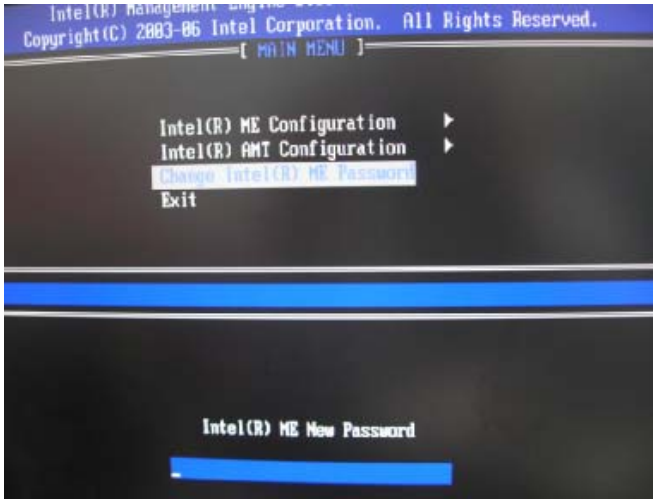

Figure 8-3: Change Intel® ME Password

Step 4: Verify the new password by entering again (**Figure 8-4**).

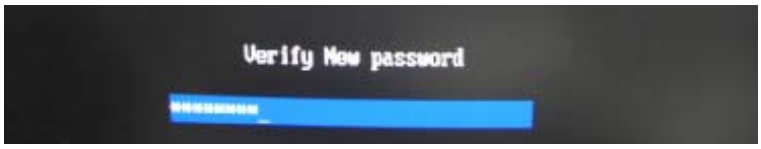

Figure 8-4: Verify New Password

Step 5: Select **Intel® AMT Configuration** and press **Enter** (**Figure 8-5**).

Figure 8-5: Intel® AMT Configuration

Step 6: Select **Provision Model** and press **Enter**. (**Figure 8-6**)

Figure 8-6: Provision Model

Step 7: When the screen in **Figure 8-7** prompts, enter **N** and press **Enter**.

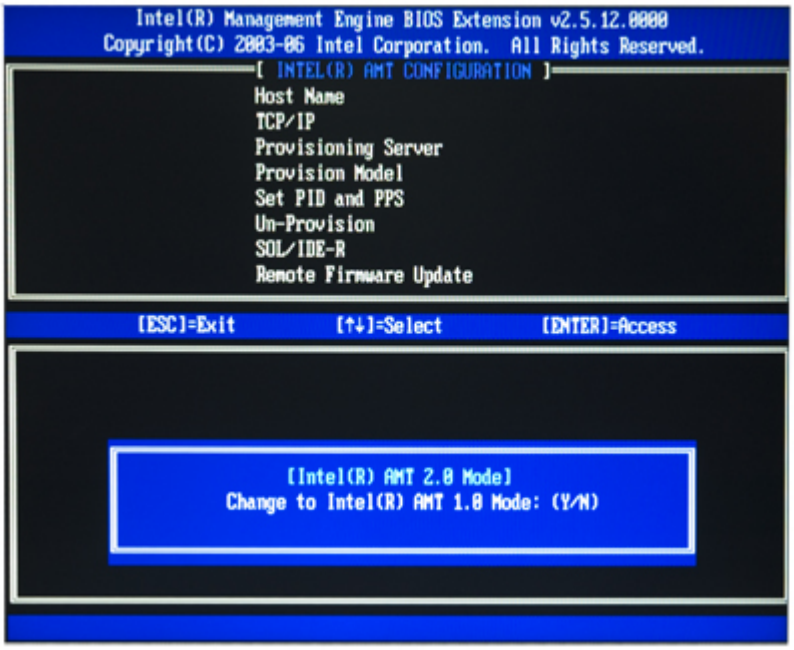

Figure 8-7: Intel® AMT 2.0 Mode

Step 8: A message prompts to confirm to Change to Small Business (**Figure 8-8**). Enter **Y** and press **Enter**.

Figure 8-8: Enterprise

Step 9: Select TCP/IP (in Intel AMT Configuration) and press **Enter**. A message prompts for disabling network interface. Enter **N** to enable network interface.

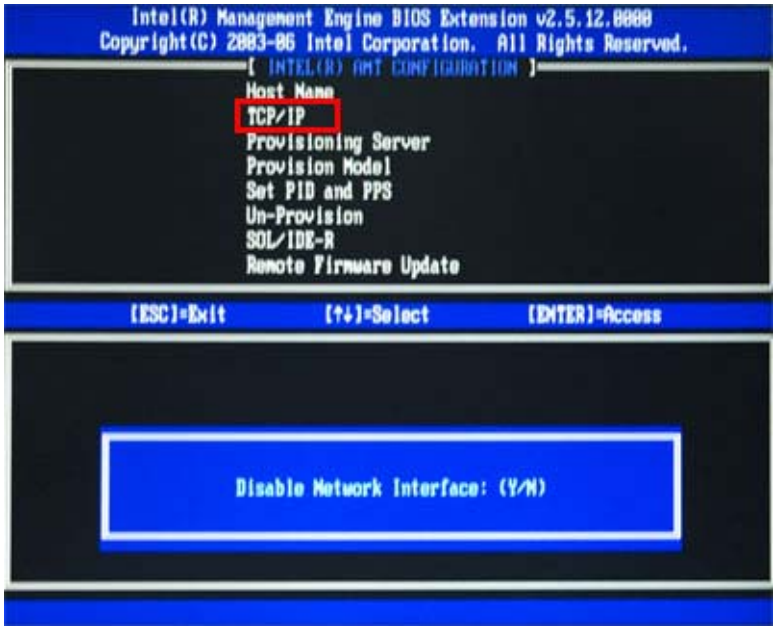

Figure 8-9: Enable Network Interface

Step 10: Enable or disable DHCP. DHCP is enabled by default. If DHCP is disabled, enter the following TCP/IP settings:

- Static TCP/IP address (the static TCP/IP address and Intel® AMI Host Name must be different from those configured in the operating system)
- Subnet mask
- Default Gateway address (optional)
- Preferred Domain Naming Services (DNS) serer address (optional)
- Alternate DNS server address (optional)
- Domain name (optional)

Step 11: Make other necessary settings in the Intel® MEBx depending on users' need.

Step 12: To exit the Intel® MEBx, return to the main menu and select **Exit**. (**Figure 8-10**)

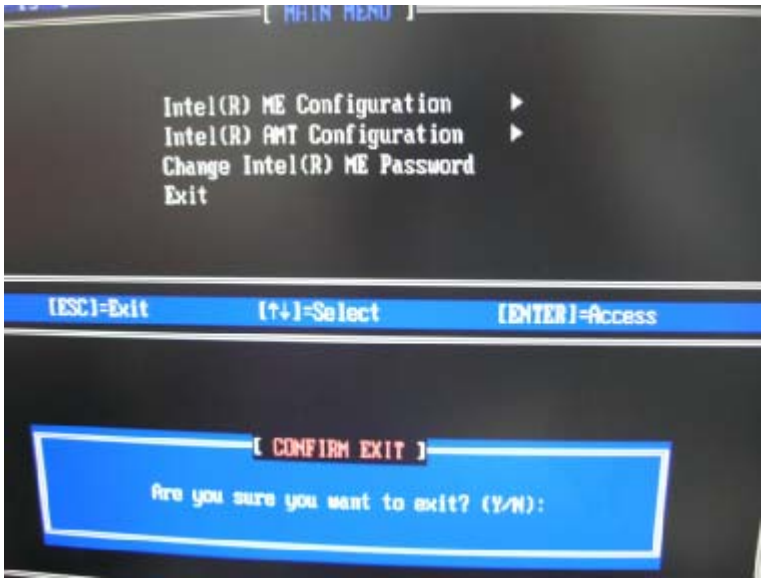

Figure 8-10: Exit

8.3 Using the Intel® AMT Web Interface

NOTE:

Prior to use the Intel® AMT web interface, please make sure the Intel® AMT drivers are properly installed in the AFL-9652 and the Intel® AMT enabled confirmation dialog window displays after boot-up.

To access an Intel® AMT client system from a remote console, follow the steps below.

Step 1: Obtain the IP address of the client system.

Step 2: On the remote management console, open a web browser.

Step 3: If DHCP is enabled in the TCP/IP menu of the Intel® ME BIOS (**Section 8.2**, **Step 10**), get the client system IP address in the MS DOS. Enter the client system IP address and the port number in the web browser:

http://*ip_address*:16992 Example: http://192.168.1.7:16992 (**Figure 8-11**)

Or simply enter the defined host name: http://*host_name*:16992

Example: http://AMTsystem:16992

Figure 8-11: Intel® AMT Web Address

Step 4: If a static IP address is defined for the Intel® AMT client system, enter the defined client system IP address and the port number in the web browser.

Step 5: A login window prompts (**Figure 8-12**).

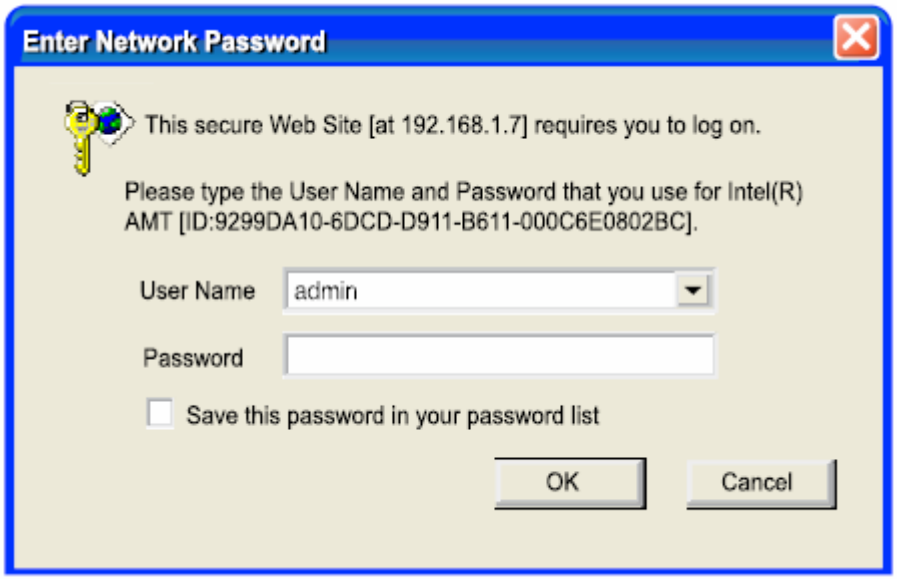
Enter Network Password
This secure Web Site [at 192.168.1.7] requires you to log on.
Please type the User Name and Password that you use for Intel(R) AMT [ID:9299DA10-6DCD-D911-B611-000C6E0802BC].
User Name
admin
Password
Save this password in your password list
OK
Cancel

Figure 8-12: Intel® AMT Web Login Dialog

Step 6: Enter **admin** as the user name (**Figure 8-12**).

Step 7: Enter the password changed in the Intel® MEBx configuration (**Section 8.2**, **Step 3**). If the password remained as default, enter Abab12!@

Step 8: Press **OK** and the Intel® AMT web interface appears (**Figure 8-13**).

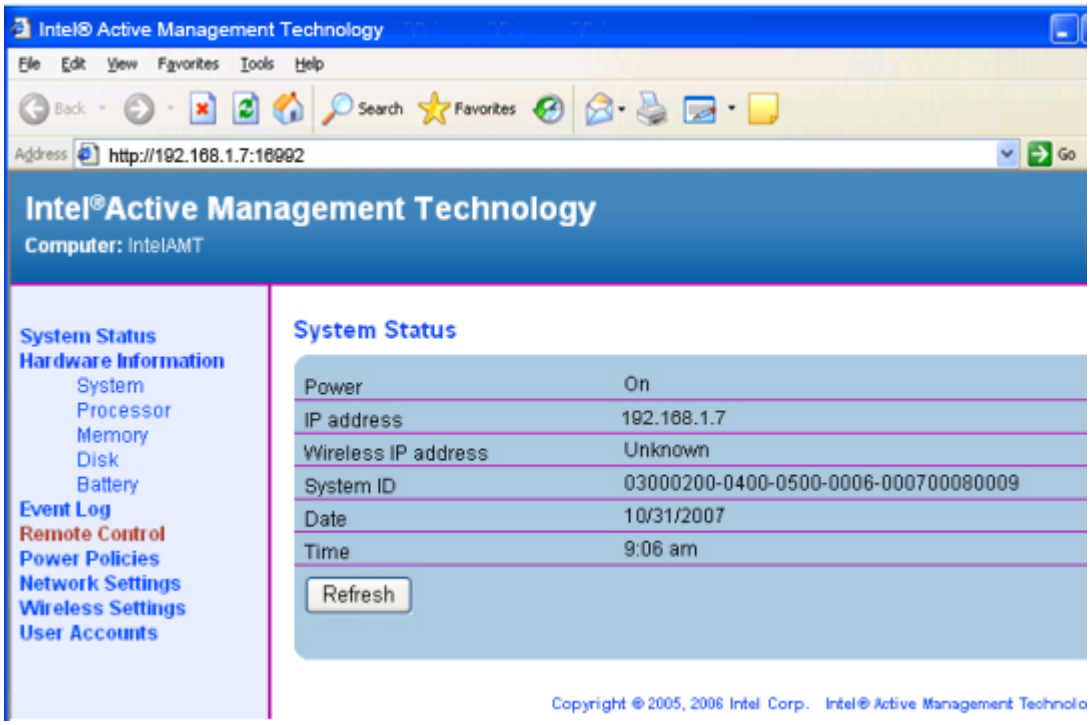

Figure 8-13: Intel® AMT Web Interface

NOTE:

To enhance the platform manageability of the AFL-9652, work with the Independent Software Vendors (ISV) to implement the Intel® AMT management utility on the system.

Appendix

A

System Specifications

A.1 Motherboard Specifications

The AFL-9652 series come with an AFLMB-9652 motherboard pre-installed. The technical specifications of the motherboard are listed in **Table 8-1**.

Specification	AFLMB-9652
CPU	2.0 GHz Intel® Celeron M 550/2.2 GHz Intel® Core™2 Duo T7500
System Chipset	Intel® GME965
BIOS	AMI BIOS Label
System Memory	2 x DDR2 SO-DIMM 400/533 up to 4 GB
Ethernet	Mini PCIe (Wireless LAN Module)
External I/O	1 x RS232 COM Port 1 x RS232/RS422/485 COM Port 1 x CF Type II slot 4 x USB 2.0 2 x Gigabit LAN 1 x eSATA 1 x VGA 1 x Audio
Super I/O	ITE IT8712F
Digital I/O	4 DI / 4 DO from Super IO IT8712F
Touch Screen Controller	DMC9000
Audio	AC'97 Realtek ALC655 with AMP TDA1517P
Display	CRT integrated in GME965 -- D-Sub connector Support panel resolution from VGA through QXGA Supports dual-channel 18/24-bit LVDS output
Power	12V only; AT/ATX support

Table 8-1: Motherboard Specifications

A.2 Flat Panel Screen Specifications

The AFL-9652 series come with a TFT LCD monitor at the front of the flat panel PC. The specifications for the LCD monitor are shown in **Table 8-2** below.

SPECIFICATION	15 inch	17 inch	19 inch
Panel Type	G150XG01 V.1 / AUO 15" Color TFT LCD.	M170EG01 VD / AUO 17" Color TFT LCD.	M190EG01 V0 / AUO 19" Color TFT LCD
Active Area (H x V) (mm)	304.128 x 228.096	337.920 x 270.336	376.32 x 301.06
Physical Size (W x H x D) (mm)	326.5 x 253.5 x 12.0	358.5 x 296.5 x 15.8	396 x 324 x 17.5
Pixel H x V	1024 x 768	1280 x 1024	
Brightness	350 (cd/m^2)	300 (cd/m^2)	300 (cd/m^2)
Pixel Pitch (mm)	0.297	0.264	0.294
LCD Color	16.2M/262K	Native 16.7M Colors (RGB 6-bit driver)	Native 16.7M Colors (RGB 8-bit data)
Electrical Interface	Single-channel LVDS	Dual-channel LVDS	
Contrast Ratio	700:1	800:1	1000:1
Optical Response Time	8 msec	5 msec	8 msec
Viewing Angle (H / V) (degrees)	140 / 125	160 / 160	
Backlight	2 lamp design with CCFL (Cold cathode Fluorescent Lamp)		
Nominal Input Voltage	3.3V.	5.0V	
Power Consumption	8.9W	25.8W	28 W
Backlight MTBF	50,000 (hrs).		
Operating Temperature	0~+65 (℃)	0~+50 (℃)	
Operating Humidity	8~90 %RH	5~90 %RH	
Storage Temperature	-20~+65 (℃)	-20~+60 (℃)	
Storage Humidity	8~90 %RH	5~90 %RH	
Shock (Non-Operating)	50G, 20ms, Half-sine wave.		
Vibration (Non-Operating)	1.5G, 10~200~10Hz, Sine wave 30mins/axis, 3 direction.		

Table 8-2: TFT LCD Monitor Specifications

A.3 Touch Screen Specifications

The AFL-9652 series come with an analog resistive type touch panel. **Table 8-3** lists the touch panel specifications.

SPECIFICATION	15 inch	17 inch	19 inch
Control Board	Chipset on Board the AFLMB-9652-R10 (DMC9000)		
Sensor Model	PANJIT 75200-1150508B-RS, 5-wire Analog Resistive Type Touch Panel.	PANJIT 75200-1171505A-RS, 5-wire Analog Resistive Type Touch Panel.	PANJIT 75200-1190503A-RS, 5-wire Analog Resistive Type Touch Panel.
Glass Dimensional Outline (W x L x T) (mm)	257.5 x 333.6 x 2.9	365.0 x 295.08 x 2.9	330.0 x 404.6 x 2.8
Viewing Area (W x H) (mm)	308.2 x 232.1	342.05 x 275.45	381.30 x 306.05
Active Area (W x H)	304.1 x 228.1	339.0 x 272.40	376.30 x 301.05
Total Transmission	78%.		
Maximum Voltage	7V.		
Connector Type	FPC.		
Operating Temperature	-10~50 (℃).		
Operating Humidity	20%~90 %RH.		
Storage Temperature	-20~70 (℃).		
Storage Humidity	20%~90 %RH.		

Table 8-3: Touch Panel Specifications

A.4 Bluetooth Module Specifications

The AFL-9652 series are all integrated with a Bluetooth module. The Bluetooth module enables the transmission between various peripheral devices through a Bluetooth network. The technical specifications of the Bluetooth module are listed in **Table 8-4**.

Specification	Bluetooth Module
Standard	Bluetooth v2.0
Frequency Band	2.402 GHz ~ 2.480 GHz unlicensed ISM band
Modulation Method	GFSK for 1 Mbps π/4-DQPSK for 2 Mbps 8-DPSK for 3 Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)
RF Output Power	Class 2 (under 4dBm)
Antenna Terminal	50 Ohms
DC Power	DC 3.3 V or DC 5 V
I/O Interface	USB 2.0 interface
Two GPIO Interface	LED link indicator interface
Dimensions	35 mm x 11 mm
Operating System	Windows XP, Windows 2000, Windows 98SE, Windows Me

Table 8-4: Bluetooth Module Specifications

A.5 Optional GPRS Module Specifications

The GPRS module is one of the OEM options for the AFL-9652 series. The technical specifications of the GPRS module are listed in **Table 8-5**.

Specification	GPRS Module
EDG/GPRS/GSM Air Interface	Quad-band operation GSM850, EGSM 900, DCS 1800, PCS 1900
	GSM Power Class 4 (2W) for 850/900 bands GSM Power Class 1 (1W) for 1800/1900 bands
	EDGE class E2 (+27dBm in 850/900 bands, +26dBm in 1800/1900 bands)
	GSM/GPRS Rel '97; PCS 1900 Rel '98; EGPRS Rel '99 compliant
EGPRS/GPRS (PS) Feature Set	GPRS Class 10, coding schemes 1-4
	EDGE Class 10, Multi-slot classes 1-9
	GPRS/EGPRS Class B type 1 MT
	Link Adaptation
	Incremental redundancy (IR)
USB Interface	USB 2.0 +5V DC
SIM Card Interface	3.0 V interface

Specification	GPRS Module
Temperature	-30°C ~ +65°C
Humidity	Up to 95%, non-condensing
Dimensions	109.3 mm x 42.7 mm x 17.7 mm
Operating System	Windows 2000/XP Home/XP Professional

Table 8-5: GPRS Module Specifications

A.6 Wireless LAN Module

The IEEE 802.11a/b/g/n compliant AzureWave AW-NE770 wireless module is pre-installed in the system and provides wireless connectivity at up to 300 Mbps. The wireless module is interfaced to the system chipset through the PCIe Mini slot.

Figure 8-14: Wireless LAN Module

Some of the features of the wireless module are listed below.

- Compliant with IEEE 802.11a, 802.11b, 802.11g and 802.11n standards
- Three antennas to support 2 (Transmit) x3 (Receive) MIMO technology
- Advanced security with WEP/WPA
- Uses Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM), DBPSK, DQPSK, CCK and QAM baseband modulation technologies.

Appendix

B

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the AFL-9652 series.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the AFL-9652 series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the AFL-9652 series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the AFL-9652 series chassis is opened when the AFL-9652 series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the AFL-9652 series.
- ***If considerable amounts of dust, water, or fluids enter the AFL-9652 series***, turn off the power supply immediately, unplug the power cord, and contact the AFL-9652 series vendor.
- **DO NOT**:
  - Drop the AFL-9652 series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the AFL-9652 series may result in permanent damage to the AFL-9652 series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-9652 series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-9652 series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AFL-9652 series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL-9652 series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other

components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.

- The interior of the AFL-9652 series does not require cleaning. Keep fluids away from the AFL-9652 series interior.
- Be cautious of all small removable components when vacuuming the AFL-9652 series.
- Turn the AFL-9652 series off before cleaning the AFL-9652 series.
- Never drop any objects or liquids through the openings of the AFL-9652 series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the AFL-9652 series.
- Avoid eating, drinking and smoking within vicinity of the AFL-9652 series.

B.2.2 Cleaning Tools

Some components in the AFL-9652 series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the AFL-9652 series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the AFL-9652 series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the AFL-9652 series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the AFL-9652 series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the AFL-9652 series. Dust and dirt can restrict the airflow in the AFL-9652 series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

BIOS Configuration Options

C.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 6**.

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Appendix

D

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BX, 05          ;time-out value is 5 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BX, 0           ;
        INT      15H
;
; EXIT ;
```

Appendix

E

Hazardous Materials Disclosure

E.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	x	O	O	O	O	x
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。